THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

THE NEED for improved methods of distributing technical data was stressed at the Architects' Conference. p. 106

THE ROME SCHOLARSHIP, 1957, has been awarded to Mr. Roelof Sarel Uytenbogaardt, of Cape Town University. p. 111

THE NFBTE have put forward recommendations which they believe to be essential to the success of the Ministry of Works' experiment in fixed price contracting. p. 112

THE LONDON COUNTY COUNCIL considered, on Tuesday, proposals for easing the congestion of Central London and the provision of homes in inner areas. p. 113

THE COMPLETE REMOVAL of Covent Garden Market from its present site has been recommended to the LCC. p. 116

THE COMPULSORY REGISTRATION of apprenticeships in the building industry is urged by the executive officer of Southampton Youth Employment Committee. p. 118

PRINCIPAL CONTENTS

ILLUSTRATIONS PAGE

CUSTOMS AND EXCISE WATERGUARD OFFICE, ALBERT DOCK, LEITH. By Chief Architect's Division, MoW Edinburgh 98

RESEARCH CENTRE, LINCOLN, FOR RUSTON AND HORNSBY, LTD. By J. C. Clavering 100

TRANSPORT AND HIGHWAYS DEPOT, NW 10. By John E. Scrase... 102

RESEARCH LABORATORY, CLECKHEATON, YORKS. By Husband and Co. 103

ARTICLES

AN OXFORD DIARY: Events at the British Architects' Conference 95

THE FINANCE, DESIGN AND DURABILITY OF BUILDINGS: British Architects' Conference Proceedings Reported 97

CORRESPONDENCE 99

FIXED PRICE TENDERS. National Federation's Recommendations 112

NEW PLANNING POLICY FOR CENTRAL LONDON: Report to LCC ... 113

THE SIZE OF A BRICK: Industry's Preference for 4½-in. Module 114

TOWN PLANNING DECISIONS 115

RENTS ACT'S AID TO SLUM CLEARANCE: Human Problems Involved ... 116

LCC: Future of Covent Garden Market and Family Homes in New Towns 116

PLANT AND MATERIALS... 117

HOUSING: Finance and Land Wanted ... 118

BUILDING TRADES OPERATIVES: Southport Conference Resolutions ... 119

EVERYDAY THINGS: VII.—The New Race 120

LIGHT CLADDING: General Principles of Design 121

FLAT SLAB CONSTRUCTION: A Development in Reinforced Concrete Engineering 124

BIRMINGHAM INDUSTRIAL SAFETY GROUP: Employers and Their Liabilities 126

IN PARLIAMENT 127

SURREY'S GREEN BELT: Extension Proposed 129

PRICES OF MATERIALS 130

RATES OF WAGES 133

OVERSEAS BUILDING 136

SCOTTISH BUILDER 137

FUTURE CONSTRUCTION 138

THE DURABILITY OF BUILDING

THE RIBA having wisely decided to continue the practical discussion subjects first introduced three years ago at Torquay, the British Architects' Conference which concluded at Oxford on Saturday last, considered the theme of 'Finance, Design and Durability of Buildings.' To this end, four papers on varying aspects of the problem were produced and circulated in advance to delegates. Since these covered the subjects of structures, services and finishes in addition to a general outline of the financial considerations of building, it had been expected that discussion might prove to be diffuse and general rather than follow a few main lines, and so it proved.

Nevertheless, from the welter of constructional case-history (much of which in itself was highly informative) two main themes did emerge at Oxford which alone make the Conference worth while. The first was that the profession must, in its own interests no less than its clients', seek to reverse legislation which places a premium on cheap initial building and high maintenance costs. The fact that some proportion of the maintenance cost of a building can be offset against tax whereas generally there is no relief on capital expenditure encourages some clients to cut the capital cost of their buildings. The wastage in materials, money and manpower to which this can lead was well illustrated in Mr. Mitchell's paper. Nor is the Treasury the only villain; as several speakers pointed out, the restrictive cost ceilings of the Ministry of Education is loading local authorities with huge sums for maintenance as well as bringing the architectural profession into disrepute. The RIBA now, we shall hope, will take steps to publicise the dangers and so strengthen the hands of those architects who seek to make their clients, private and public, aware of the situation.

The second point that was well made by several speakers was the need to find new means of keeping architects informed of the merits of new materials and techniques. There is a great deal of data on construction and design problems already available in print in one form or another, and the discussion at the Conference showed the wealth of practical experience which is possessed by the body of architects at large. Yet it seems that the ideal means of getting this information across has not yet been found. Is there a solution? The proposal made at Oxford that one means might be the initiation by allied societies of study groups which should meet regularly, pool information and transmit it to the RIBA for collation and general issue won much support. This scheme is being tested with much success by Mr. Eric Bird on behalf of the Building Centre, and experience shows that good results are gained by small groups of interested people working intimately together. An extension of this plan on a national basis could produce valuable data.

But there are other means by which the architect could be helped. One is by the manufacturers themselves submitting their new products to BRS testing and by publishing the results in lucid and technical ways, in brochure and in their advertisements. Assistance here could be given by the BRS itself if it were both quicker and more forthcoming in its reports. A policy which is based to some extent on a desire to hurt no one will really not do; though the Station has shown welcome indications of getting away from this inhibiting limitation, it has a long way yet to go. More consultation with engineers, for services as well as for structure, must also help the architect in his increasingly complex work.

In the long run, however, architects must do more to help themselves. Expectation that they must be spoonfed with information was implicit in many of the discussion contributions at Oxford. The reply is that the information is there (it is the biggest tragedy of research that the establishment of data is so far ahead of its acceptance by the industry) and that each architectural practice must have someone (and it may have to be, in the small private practice, the principal

himself) whose primary concern it is to keep abreast of the published knowledge. The recognised bodies, such as the BRS and the Press, will continue to make public the facts, and the RIBA may now lend its weight in the manner suggested at the Conference. The scientific pabulum will in short be produced in its most palatable form, but the architect must raise the spoon to his own lips. Those who will not or cannot may find themselves suffering from malnutrition.

ADVANCED BUILDING TECHNOLOGY

PROPOSALS outlined in our last issue for the establishment in London of a College of Advanced Building Technology will have been read with much interest by those who wish to see a consolidation of building education. The reasons for such a College were well put by the regional advisory council in their report, and as such will command respect and support, especially as they seek to put into effect views which have been canvassed of recent years by forward-looking members of the industry.

Enthusiasm for the proposals must, however, be set against the general situation in which building education finds itself to-day, and also against the position of the established building schools. A large number of new building departments was opened in technical schools after the war ; not all of these were justified by industrial needs. It would be, no doubt, the hope of the authors of the report that the proposed College would reduce the number of small cells all over the country where tiny groups of architects, builders, surveyors and structural engineers pursue their individual advanced studies, always apprehensive of an order to close down through lack of support. This would be to the good, so long as the territorial needs of students can be met.

But the situation to be faced by other technical colleges, particularly the London ones, must be kept also in mind. The ideas which are advanced by the report are in essence not new; they are being carried out in practice by a number of technical colleges in England and Scotland, though the courses in which they find practical expression almost invariably fall short of the ideals of the report. Is it in accommodation, in staffing or in student numbers ? Is it that sufficient students will not train for many years for a qualification, believing that current remuneration for industrial posts does not justify their labours ? If this is so, then there is work for the building industry to do in agreeing upon the qualification required by industry as well as by the professions for their particular purpose; this may well mean reducing the mass of technical qualifications at present offered to young students. The industry must also offer some guarantee in general that remunerative posts for well-trained, ambitious young men will be available after training.

One more point at least requires further thought. The creation of a new College must affect the student intake at existing technical colleges; this is to be expected. But it will also affect their staffs, for the staff of the new College will inevitably in first instance be drawn from the older establishments. What will happen to the vacuum ? Does not this question point to the need to consider the new proposals against the background of a national building educational plan ?

These comments are offered in no carping spirit. The ideas and ideals behind the proposed new College are of the stuff of which a new building world may well be made. Its sponsors will, we shall hope, consider them well so that their inspiring project may be launched on a calm sea.

Mr. and Mrs. J. H. Forshaw (centre) are seen with Mr. and Mrs. Michael Waterhouse. In the background is Mr. George Coulter. In the picture to the right Mr. and Mrs. C. H. Aslin (centre) talk with Mrs. Humphrey Boardman. To the left is Mr. Alec Faldo, taking a day off from cricket

Notes of the Week

THE president-designate of St. John's College, Oxford, Mr. W. C. Costin, OBE, has just revealed some details of the new building operations at the College which are about to start. Owing to the demand for more room for students, partly due to the coming abolition of national service, a new building is to be built to complete the North Quadrangle. The south block has been in use for many years past, and on the north side some old stables and shrubbery have remained undisturbed for at least half a century. On this land there will now be built accommodation for at least 30 students. It will be of a very modern design; in fact, a complete contrast to the older part of the College, whose Hall was built about 1502. Sir Edward Maufe, who has modernised parts of the College in recent years, will not be the architect of the new building. It is believed that there has been a difference of opinion among the Fellows of the College on architectural styles.

Northern Ireland Housing Trust

THE customary high standard of the annual reports of the Northern Ireland Housing Trust is fully maintained in the one for 1956-57 (the twelfth), which gives a wealth of information about the various aspects of the Trust's work, together with 16 pages of illustrations, in line and half-tone, of flats, houses, shops and flats, shops and maisonettes, old people's dwellings, etc., erected or to be erected on the various estates. The work shown is excellent both in siting and architectural quality. (Mr. J. Cairncross, Dip.Arch, ARIBA, AMTPI, is the Chief Technical Officer.)

In his report the chairman, Sir Lucius O'Brien, calls attention to the high level of interest rates and says that since there is a hope that these may later become more favourable the Trust must guard against the danger of building too extensively. In the year under review 1,585 dwellings were built. On March 31, 1957, the total number completed was 17,752 and 3,517 were under contract. Land for a further 6,000 dwellings is in the possession of the Trust. Mr. J. G. Calvert, BComSc, is the general manager.

The report is published, price 2s., at the Head Office of the Trust, 12, Hope-street, Belfast.

CPRE: Peak District Report

'THE YEAR, as usual,' records the 1957 annual report of the CPRE, Sheffield and Peak District Branch, 'has been crammed with activities, hopes and fears.' On the credit side are the successful stand made with the Sheffield Corporation against the erection of a rolling mill in the hamlet of Butterthwaite, and the acquisition by the National Trust of a further 14 acres adjacent to the Longshaw Estate above Hathersage. On the debit side there are threats to the historic village of Barlow by opencast mining, to the peace and seclusion of the Manifold Valley by a motor road, and to some sound and pleasant rural cottages at Norton and Holmesfield.

AN OXFORD DIARY

From Our Own Representative

WITH the University Council's appeal for £1,750,000 for a preservation fund ringing in one's ears, it was a relief to come into Oxford from the Henley-road to find Magdalen Tower standing and for that matter (*pace* Mr. Sandys) Magdalen Bridge still open. But so they were, and the stage was set for a Conference which had all the ingredients for success—a good discussion subject with knowledgeable speakers, an interesting series of tours of the city, and a well-chosen social programme ending with the ball at Blenheim Palace.

To what degree these factors were individually responsible for the numbers attending the Conference is difficult to say, but it remains a fact that the delegates numbered 916 (No sir, the list gives 931 but you haven't counted the blanks) and this in itself constitutes a record. Most members seemed to have got to Oxford in time to claim badges from the Conference office in Balliol College and go on to St. John's where they were received by MR. CROSS, the President, and by the President of the Berks, Bucks and Oxon AA, MR. E. STEWARD SMITH. A programme of madrigals and instrumental music for harp and lute had been arranged in the gardens, while the Librarian, MR. HOWARD COLVIN, Hon ARIBA, had prepared a display in the Library of the College documents of architectural and historical interest. The gardens looked most beautiful under moonlight, making almost unnecessary the rather unsympathetic floodlighting laid on at various points.

Canterbury Quad made an excellent long bar and refreshments were royally dispensed. An excellent prelude to the next day's work. The programme for this reception was in itself a delight, on which the client Association and the Oxford University Press may mutually congratulate the other.

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WORK STARTED IN EARNEST next morning, but before we plunged into the short but brilliant guide to economics with which MR. TOM MITCHELL opened the discussion papers, a full house filling the Playhouse Theatre's stalls and gallery were treated to a model example of how an address of welcome should be given. Here MR. BOASE, the Pro-Vice-Chancellor, excelled himself; it appears that in matters to do with architecture the RIBA and Oxford University have this in common—they are always wrong!

The Pro-Vice-Chancellor was almost the last of the light touches which the Conference discussion was to see, apart from a few witty asides from the four principal speakers — and some of these were missed by reason of the compressive pace at which they were obliged to read their introductory remarks. The business sessions are summed up elsewhere but it is at least worth debating whether the ideal method of presenting technical subjects at a conference has yet been found. Any assumption that everyone present had adequately digested the 24 pages of text issued to delegates in advance may have been a little rash. As it was, so wide a field was covered in the written papers that the discussion tended to become a swap-session of case histories.

But the session was a good one, and recognisable themes emerged by the end of Friday morning. All four speakers — TOM MITCHELL, LEWIS WOMERSLEY, CLEEVE BARR and JOHN EASTWICK-FIELD —enhanced their already high reputations, and if a few of the contributors to discussion professed to find the notes of caution sounded by Womersley and Eastwick-Field a little reactionary, that was all to the good. It was interesting, by the way, to find that 50 or more members were willing to cut short their lunch on Thursday to attend an extra session in Balliol SCR at which a decision was taken to canalise subsequent discussion.

It was a pity (though almost inevitable by reason of THE PRESIDENT'S remarks in the morning about Conference weather) that the Garden Party should be spoiled by rain. Fortunately this did not descend on Trinity College Gardens until the ladies of the company had had time to show their dresses and hats, of which quite a remarkable collection was on view. There was also time for some folk dancing at which the honours were carried off by a gentleman who managed to produce most sweet airs from a penny whistle played with one hand while with the other he beat a side drum. The tent, wisely provided by the local committee, became rather full when the rain came down, and the most popular members were those who had parked cars nearby and had brought raincoats and umbrellas.

Country dancing at the Garden Party

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IN THE EVENING OF THURSDAY the Conference dinner. Christ Church Hall

The President takes tea with the Mayor of Oxford (Alderman Knight)

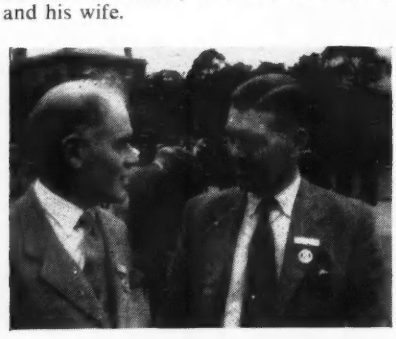
Mr. A. Llewellyn Smith and Mrs. D. H. McMorran

Mr. and Mrs. Humphrey Boardman (Norwich)

Mr. Bill Taute (back to camera) demonstrates a point to Mrs. Taute and Mr. and Mrs. Lesslie Watson. To the right, Miss Jocelyn Adburgham, Mrs. and Mr. David Booth and Miss Judith Ledeboer face up to the camera

not being available, recourse was had to the Town Hall as being the only building of a size to accommodate 500 diners. MR. CROSS shook hands with them all (how grateful he must have been that this was not an American congress with over 4,000), helped by MISS JENIFER CROSS and MR. AND MRS. STEWARD SMITH. Oxford Town Hall is a truly remarkable building, graced with plaster bas-reliefs of young ladies of Mediterranean origin in attitudes which suggest long familiarity with the Examination Schools. Your Correspondent is quite certain that he distinctly heard one of these young women say to another that if the Greeks had a word for it, the British had half a dozen. The truth is that the speeches, with the exception of those by the Vice-Chancellor, MR. MASTERMAN, and MR. STEWARD SMITH, were all rather too long for a humid night. Not to say that they were not good, particularly those by MR. BASIL SPENCE and by SIR JOHN WOLFENDEN who was in his customary brilliant form. As it was, speeches did not end till after 11 o'clock, and (possibly as one result) the national newspapers carried no report. Does this matter? Some think it does.

It was pleasant to see a good international flavour among the guests who included MR. and MRS. LEON BROWN (of Washington, DC) and MR. and MRS. FISHER (of Toronto), as well as representatives of Australia and South Africa. It was also a pleasure to see the Southern builders' President, MR. PETER LOVELL, and his wife.



Mr. Robert Morton (Edinburgh) and Mr. John Nicholls (Lytham St. Annes) compare climatic notes

The dinner was well chosen for a warm night, though demand for tickets was such that the failure of the member on his left to turn up made your Correspondent one of the few comfortable people in the room.

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THE DISCUSSION ON THE PAPERS was resumed on Friday morning and picked up considerably, perhaps as a result of the lunchtime session of the previous day. MR. R. W. CAVE ended it off brilliantly with his vote of thanks; this is surely the first time that the niceties of parging in the traditional manner have been

Mrs. Haroid Conolly and Mrs. Ian Leslie share an umbrella while Mr. Conolly braves the rain

discussed at an RIBA conference. But there has to be a first time for everything, and those present can count themselves lucky to have heard his witty discourse.

In the afternoon members who had not gone off for the day with MR. THOMAS RAYSON for a Cotswold tour had the chance of accompanying one of twelve parties which were examining different parts of Oxford. Your Correspondent chose that on Victorian Oxford and was well rewarded in MR. A. LLEWELLYN SMITH'S choice of buildings and by his informed and racy comment. The Museum, Keble, Mansfield College, Manchester College, Sir Thomas Jackson's new buildings for BNC and Sir George Gilbert Scott's work at Exeter College Chapel were visited. If there is a moral to the tour it is that it always is well to take the Victorians at more than their face value. Dean and Woodward's quite remarkable interior of the Museum (where they clearly did *not* have Ruskin's help and advice) alone made the tour worth while, while Butterfield (through his Keble Chapel interior), Champneys (Mansfield College) and Jackson (with his High-street elevation to BNC) will undoubtedly be regarded by the party with enhanced respect.

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AND SO TO THE HIGHLIGHT for which the ladies had been waiting—the ball at Blenheim. The weather had fortunately mended by this time and the Palace, seen in the evening light, made one thank providence that in Marlborough's time the Labour Party was unheard of, or Vanbrugh and Capability Brown would have stood no chance. The extent of the Palace is fantastic and the style opulent but the effect is regal. HIS GRACE THE DUKE did not put in an appearance or he might have helped those many guests who lost themselves in the corridors. Your Correspondent left early but dancing in the Library to two bands went on until 2 o'clock. The warm evening made the formal gardens most popular.

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SO ENDED a most successful Conference. The thanks of all are due to the hosts, the local Association, and in particular to MR. DAVID BOOTH and MR. GEOFFREY BEARD of the organising committee who, with their helpers, put in endless work for the members' comfort and entertainment. They in turn would wish to thank the RIBA staff, headed by MR. H. R. WILLIAMS, MR. A. E. PARRISH and MISS SANKEY, for their magnificent staff work, and all would unite in commending the help given by the ushers from the Oxford School of Architecture under MR. DAVID BURTON for their unostentatious work.

Finally, no account would be complete without reference to the Conference handbook for which MR. R. W. CAVE was responsible as editor and MR. BATEY, the Printer to the University, as printer. In value of content and excellence of production this handbook, given to each member on arrival, was a promise of good things to come which in the event has been most amply fulfilled.

I. M. L.

BRITISH ARCHITECTS AT OXFORD

Problems of Finance and Design Discussed

THE British Architects' Conference, held in Oxford from July 10 to 13, opened its business session on July 11 when the Pro-Vice-Chancellor of the University, Mr. T. S. R. Boase, welcomed the delegates from the stage of the Playhouse Theatre. The President, Mr. Kenneth M. B. Cross, was in the chair.

To everyone in Oxford the subject of architecture was one approached with considerable trepidation, said MR. BOASE; whether it concerned architecture new or old, Oxford was always doing something wrong! An appeal for funds for preservation of the University's buildings was now launched; there must be much envy of Cambridge whose University authorities had chosen their building stone with such greater discretion. In that University there seemed to be little that a little water would not clean. Oxford on the other hand, from Wyatt onwards, had always been the subject of criticism. 'I like very much the suggestion of taking down the old cloister' Wyatt had said of Magdalen.

Now the University were proposing new buildings for the Science Schools at Keble-road—a plan which had still to pass the antiquated but extremely democratic committee. Architects, he was sure, must find it extremely hard to know how their buildings were ever to get started; they must often find their task almost insuperable. 'Yet the record of the architects of Oxford's nineteenth-century buildings is, on the whole, a creditable one, and I can only hope that the twentieth century also will leave something to its credit,' said the Pro-Vice-Chancellor, who ended with a tribute to the RIBA Library and to the helpfulness of its staff.

In his inaugural address, THE PRESIDENT said that some indication of the growth of the Conference and perhaps of the RIBA itself could be gauged from the fact that at the last Conference held in Oxford, in 1924, there were 268 in attendance; on the present occasion there were 916, easily a record.

The President paid tribute to the work of organisation done by the Berks, Bucks and Oxon AA, and particularly by Mr. E. Steward Smith, their President; by Messrs. David Booth and Geoffrey Beard with their local committee; and by the Secretary of the RIBA and Mr. H. R. Williams, the chief clerk. It was significant of the changes that had taken place since the last conference there that whereas the subject in 1924 had been 'The History of Oxford,' the subject of the present congress covered economics of building. He would ask members in their discussions to remember that they were discussing not the maintenance of buildings but the enconomics of construction.

MR. E. STEWARD SMITH also added his welcome on behalf of the host society.

Finance, Design and Durability of Buildings

The four principal speakers, each of whom had prepared a written paper on one aspect of the subject theme which had been previously issued to Conference members, then briefly introduced the papers. (N.B.: The written papers are not reproduced, as they are printed in full in the current issue of the RIBA *Journal*. —ED.)

'Outline of the Problem'

IN giving an outline of the problem, MR. THOMAS MITCHELL, MBE, BSc, ARIBA, said that we were not finished with finance when the money for the erection of a building had been found. Money must be set aside annually for repairs and renewals necessary to maintain the building as a going concern. Further, since every building became a wasting asset as soon as it was erected, sums must be set aside annually to replace the wasted portion—and to make good depreciation — so that when the life of the building had expired the original capital might remain intact.

Mr. Mitchell continued: The taxation system in this country very largely in many ways encourages cheap capital cost in new buildings and a deliberate acceptance of relatively high maintenance, particularly in the case of successful industrial and commercial concerns, because maintenance charges are an allowable item against profits for taxation whereas capital costs are not, except in the case of industrial and agricultural buildings which receive certain allowances.

Is this encouragement of cheap capital cost and acceptance of high maintenance cost sound policy? In my written paper I quoted some figures for the building labour force during 1956 given by the Ministry of Works. During 1956 the average total labour force employed by building and civil engineering contractors was 1,186,000, and of these 327,000, equivalent to 27.5 per cent. of the total, were employed on repair and maintenance work only. That is to say, 27.5 per cent. of the whole of the labour force was non-productive in the sense that these 327,000 men produced no new buildings, did nothing to raise our standards of living, did nothing to add to the capital resources of the country, but merely spent their time retarding the rate of deterioration of buildings already existing. If one included building workers employed on maintenance by Government Departments, local authorities and public utilities, it is thought fairly that the value of the work of maintenance would total between £630m. and £650m. in 1956. This does not take into account the large amount of maintenance, particularly, but not only, decorating, carried out for payment by tradesmen working in their spare time, nor of the amount, possibly as great, done by the 'do it yourself' brigade.

A saving of only five per cent. of £650m. would give us £32½m. which, with the same labour force and the same annual expenditure on building, could be devoted to new construction instead of being frittered away maintaining what already exists. Quite a lot of new building can be obtained for £32½m. If the Chancellor of the Exchequer did not divert it to other uses, we could have three times the number of health buildings, or we could rebuild our obsolete prisons, or rebuild quite a number of railway stations.

The Central Theme

Here, then, is the central theme of the Conference. If our country is to prosper, we face a rising demand for new buildings. It cannot help us, in our economic struggle with the rest of the world, to erect them in such a way as to use up in subsequent years a large labour force to maintain them. Can we, in the new buildings of the years ahead, reduce maintenance costs and at the same time make them agreeable to look at and make better buildings?

To do so will involve better briefing by clients, more consideration by them of the matter of building large schemes in stages (by that I mean technical as well as financial considerations), and a more responsible outlook by them towards the regular inspection of their buildings and to the intelligent execution of unavoidable maintenance work.

On our part as architects, we must carefully study the possible behaviour of new or unfamiliar materials, and be more systematic in our collection of information about the performances of materials and components in actual buildings. We must see that parts which of necessity wear out or require maintenance have accessibility commensurate with the frequency of the operation and its basic cost, bearing in mind that labour costs are likely to go on rising and that craft skills in the building industry are changing. We must avoid loose thinking about so-called temporary and limited life buildings.

Finally, let us be quite clear that we are architects, that it is our profession to design buildings. If we attempt to contribute to the solution of this problem only in terms of building technology, we shall have failed to do our job at this Conference. We must create buildings which externally and internally please the eye and the emotions. In attempting to do so with modern materials, although it is obvious that so far we have been unable to emulate the subtleties of appearance in the use of traditional materials to which generations of architects contributed, let us keep refinement in front of us as an aim, remembering that appearance consists not only of mass and colour but that the texture and light-reflecting qualities of materials are among the finer instruments we possess.

'Structures'

IN introducing the subject of 'Structures,' MR. J. LEWIS WOMERSLEY, FRIBA, AMTPI, said that since, as he understood it, the purpose of the present and previous conferences was the excellent one of endeavouring to rationalise building design in its fullest sense, it

(*Continued on page* 106.)

West elevation

Customs & Excise Waterguard Office, Albert Dock, Leith

Designed in the Chief Architect's Division, Ministry of Works, Edinburgh

J. BEST (Contractors), Ltd., Builders

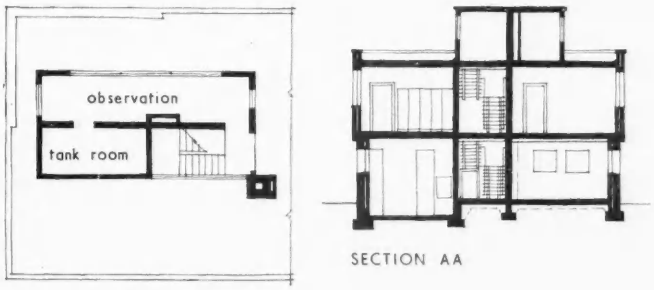
THIS new building, which is situated on the north-east side of the Albert Dock, has been designed to accommodate a staff of 20 on two floors, and replaces obsolete premises on Victoria Dock, Leith.

On the ground floor there is the general office, search room, chief petty officers' room, garage, boiler house, lavatories and store. On the first floor provision is made for lecture and briefing rooms, mess room, kitchen, lavatory, dressing and drying rooms. Observation facilities are provided from a pent-house constructed over the flat roof.

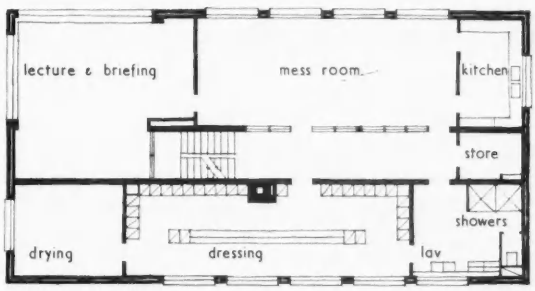
The building is of load-bearing construction throughout, apart from a light steel frame supporting the staircase which consists of tubular steel stringers with hardwood treads and handrail. The external walls on ground floor are faced with Blaxter stone in random courses, and the first floor is finished in white Tyrolean roughcast.

Windows are standard section steel casements and the eaves cope is natural stone. An heraldic crest, stove-enamelled in colour, forms a decorative feature on the main elevation. Floors are concrete, finished with lino and thermoplastic tiles.

Walls internally are plastered and painted, and lavatories are finished in terrazzo. Flush doors and glazed screens are in polished West African hardwood. Engineering services were by—heating: Chas. Ritchie and Co., and electrical: J. Plucknett, Ltd.



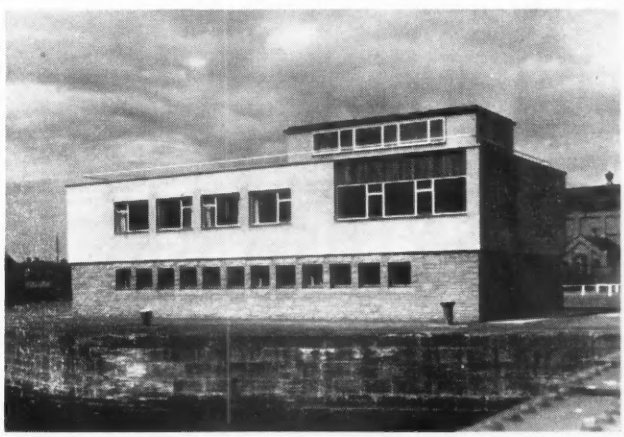
ROOF PLAN



FIRST FLOOR PLAN

GROUND FLOOR PLAN

PLANS & SECTION. Scale: 1 in. = 24 ft.



East elevation

CORRESPONDENCE

Elemental Bills Again

To the Editor of *The Builder*

SIR,—May I raise the matter of elemental bills once again?

When I first heard the term I naturally took steps to find out all I could about them, but it was never clear to me to what end they were being produced. Having now seen elemental bills in contractors' offices and read many articles and reports of meetings printed in the technical Press, I am bound to say that to me their object is still obscure.

It seems, and this is where I wish to be corrected if wrong, that an elemental bill gives no more information than that which is already contained and can be readily extracted from an orthodox bill. In fact an elemental bill gives information which is quite valueless. Mr. E. H. Wilson said at the RICS general meeting of quantity surveyors on April 17 last that he had figures for internal walls and partitions for three almost identical jobs. They were 4s. 6d., 4s. 7d. and 3s. 1½d. per foot respectively; he went on to say that although these prices varied considerably, the overall prices *per foot super* of these three jobs were within 3d. per foot.

Had the prices of the 'element' of walls and partitions only varied by 3d. I cannot see of what value this information is since the price is not per foot super of wall but per foot super of *floor area*, and is limited therefore to the ratio of area of walls to area of floors.

Mr. Roger Foster at the same meeting said that there were builders who had found the elemental bill an advantage, but he did not say why. I have not yet met one who finds it so. One builder was reported in the *Architects' Journal* as saying that he thought elemental bills would reduce pricing by eliminating the risk of averaging out pricing where painting or other works were carried out at different floor levels, but here again is a case of confused thinking. Elemental bills are not subdivided into floor levels, and I do not think contractors require this for accurate pricing; if they do, then it should be introduced into the SMM.

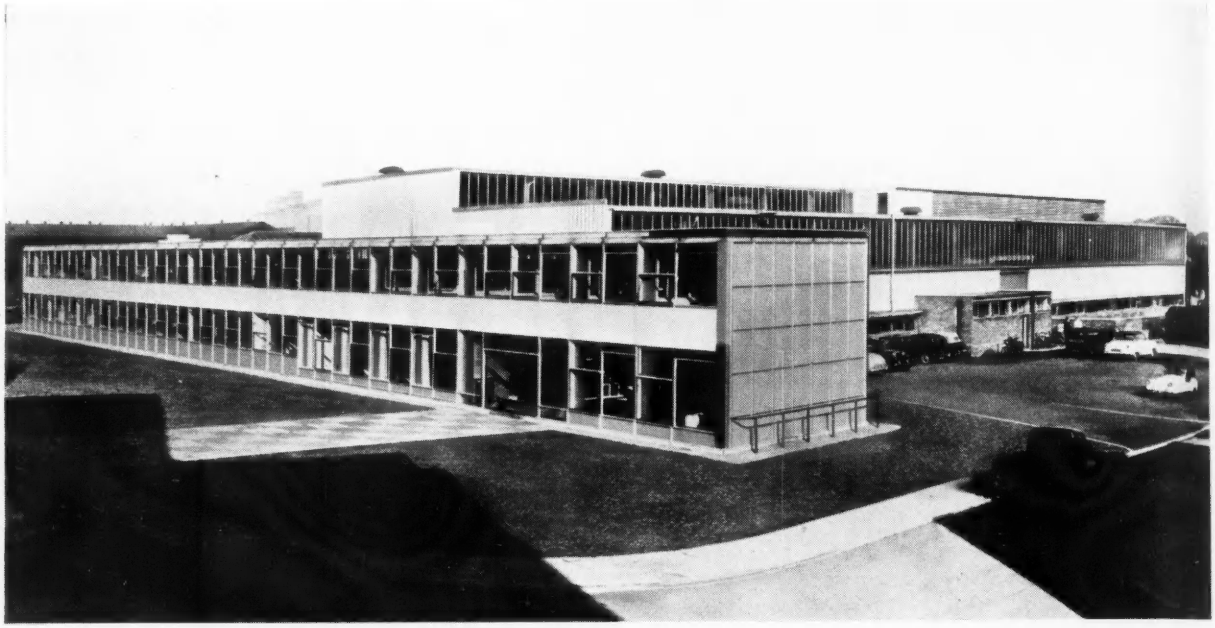
Mr. E. H. Wilson also referred to interim certificates and said that a building was seldom built in elemental order but never in trade order. Surely this is a reversal of fact. The trade order of a normal bill, particularly if 'Foundations and Work up to DPC' are kept separate, follows as near as possible the order of construction, and should one trade be started and completed before another it is of no consequence, but no builder constructs the external walls and completes all finishings to those walls before starting on the internal walls or partitions.

No, I feel the advantages of an elemental bill are outweighed by the disadvantages and that quantity surveyors are in the unfortunate position, should they condemn them or even refrain from enthusing over them, of laying themselves open to the charge of being unprogressive.

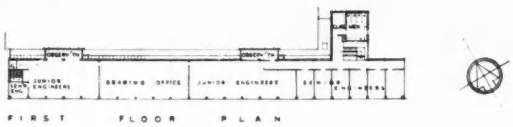
JOHN EVERS [ARICS].

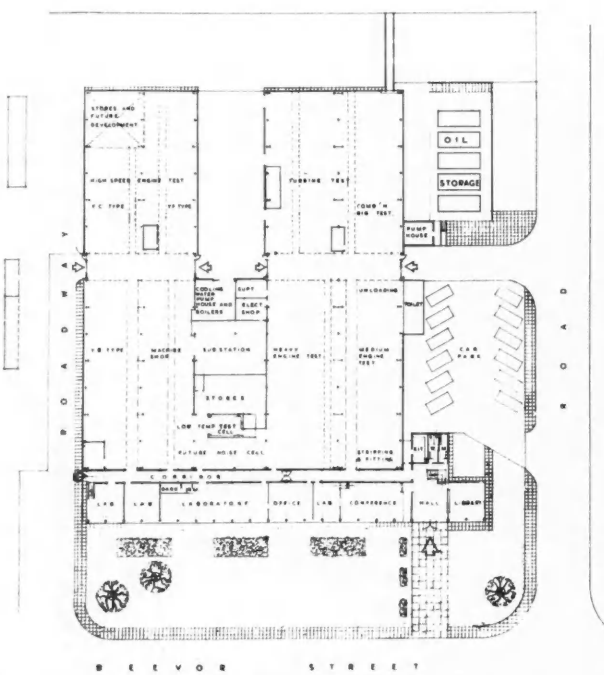
20, Ridge-avenue, N21.

RESEARCH CENTRE, LINCOLN
for Ruston & Hornsby, Ltd.



From the south





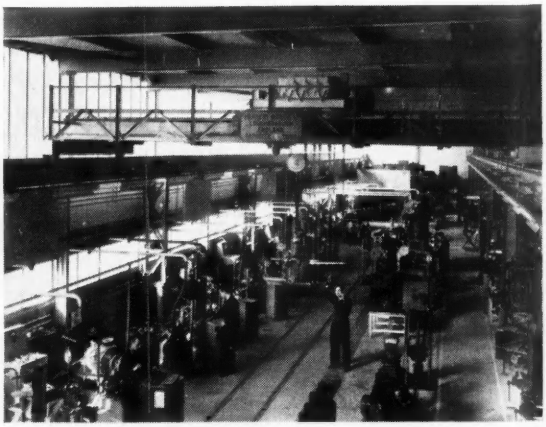
PLANS, Scale: 1 in. = 94 ft.

Architect:
J. C. CLAVERING, FRIBA

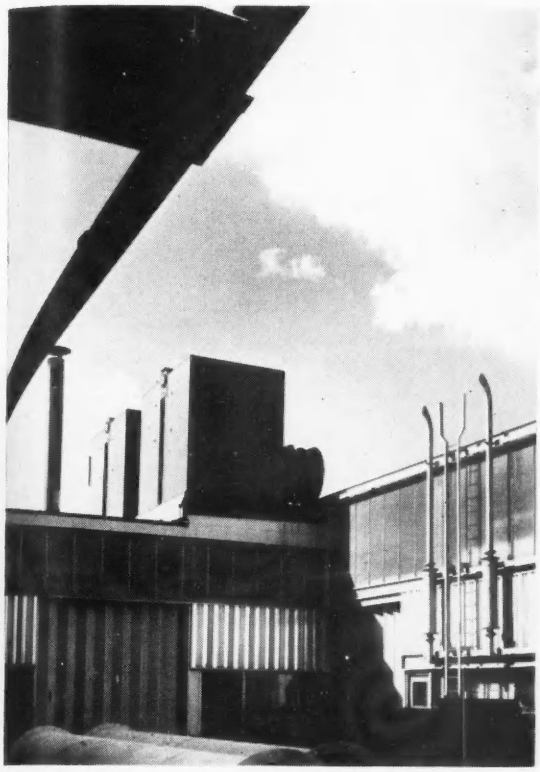
Consulting Engineers:
T. BEDFORD & Partners
CLARKE, NICHOLLS & MARCEL

Quantity Surveyors:
THURGOOD, Son & CHIDGEY

Builders:
Wm. MOSS & Sons, Ltd.



Bay No. 5 containing engines up to 78 B.H.P.



The cooling towers above the short centre bay

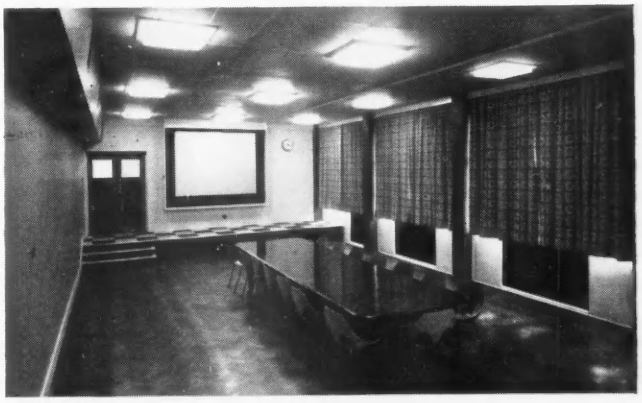
THE WORKSHOPS ARE ARRANGED in 'U' shape, and offices and laboratories form a separate structure across the base of the 'U.' This arrangement of workshops allows for as much wall space as possible to carry the considerable exhaust ducting necessary in a building of this nature.

The building consists basically of two parts, the engine test area and the offices and laboratories. The main problem involved in design was to combine the two parts for quick access from one to the other, and for visual supervision of the test area from the laboratories at the first-floor level and, at the same time, ensure that the occupants of the laboratories would not be disturbed by noise or vibration from the test area. To avoid the transmission of vibration the laboratories were constructed on entirely independent foundations, and there is no structural connection between the two parts. A ground-floor corridor links the two buildings, the roof structure being connected by a flexible joint.

The office and laboratory block is steel-framed on piled foundations. The first floor and the roof are of prestressed beams spanning the full width of the offices and, in general, give a clear span uninterrupted by beams.

The test building is of steel-framed construction on piled foundations. A vision strip 7 ft. high sits on a brick cavity wall, with a cill level of approximately 4 ft. Above the vision strip, the cladding is completed by aluminium sheet with insulation board, above which is patent glazing to eaves level. The roof is of pressed steel decking, insulated and felted. The north elevations are of aluminium sheet construction from floor to eaves level and are built on a temporary basis which allows for further extension.

Research Centre, Lincoln for Ruston & Hornsby, Ltd.



The conference room

Subcontractors & Suppliers :—

Piles for building foundations and large engine beds, Franki Compressed Pile Co., Ltd.; wallspan units, Williams and Williams, Ltd.; sheeting contractors, Manchester Slate Co., Ltd.; steel contractors, Henry Smith, Ltd.; metal windows and patent glazing, Helliwell and Co., Ltd.; 'Kynalok' aluminium sheeting, I.C.I., Ltd.; roof decking, Robertson Thain, Ltd.; main electrical contractors for lighting, fittings, and cables, Edison Swan Elec. Co., Ltd.; electrical subcontractors to Ediswan, James Scott and Co., Ltd.; heating and piped services, G. N. Haden and Sons, Ltd.; rectifier and switchgear, Electric Construction Co., Ltd.; switchgear, English Electric Co., Ltd.; acoustic ceiling, Newall Insulation Co., Ltd.; main doors to test area, Bolton Gate Co., Ltd.; ventilation fans, Woods of Colchester, Ltd.; perforated acoustic hardboard (Royal board), Spencer, Lock and Co., Ltd.; wash and drinking fountains, Farmers, Ltd.; fire extinguishers, Pyrene, Ltd.; office block linoleum floor, Limmer and Trinidad Lake Asphalt Co., Ltd.; cold chamber, Helliwell and Co., Ltd.; dynamometers and water-cooling towers, Heenan and Froude, Ltd.; overhead cranes, Herbert Morris, Ltd.; exhaust silencers, Servais Silencers, Ltd.; alternators, Crompton-Parkinson, Ltd.; air, fuel and oil filters, Vokes, Ltd.; lathes, Dean, Smith and Grace, Ltd., Swift, Summerskill, Ltd., Myford Engineering Co., Ltd.; power press, John Mills and Co., Ltd.; grinder, Churchill Machine Tools, Ltd.; vertical miller, James Archdale and Co., Ltd.; reciprocating metal saw, Edward G. Herbert, Ltd.; engraving machine, Taylor, Taylor and Hobson, Ltd.; bench drills, Pools Tools Co., Ltd.; screw-cutting machine, Kendall and Gent; engine indicators, Dobbie McInnes, Ltd.; engine indicators, Southern Instruments, Ltd.; fuel pump calibrating bench, Hartridge, Ltd.; pressure connections, British Ermeto Corporation, Ltd.; instruments, Short and Mason, Ltd.

South elevation

TRANSPORT & HIGHWAYS DEPOT, NW10

JOHN E. SCRASE, BSc (Eng), AMICE, Borough Engineer & Surveyor, Hammersmith

Architect in charge:
HARRY DALEY, ARIBA, AMTPI

Assistants: DONALD R. MARSHALL
JOHN D. CROUCH

Engineer: J. TRIM, BSc (Eng), AMICE, AMIMunE

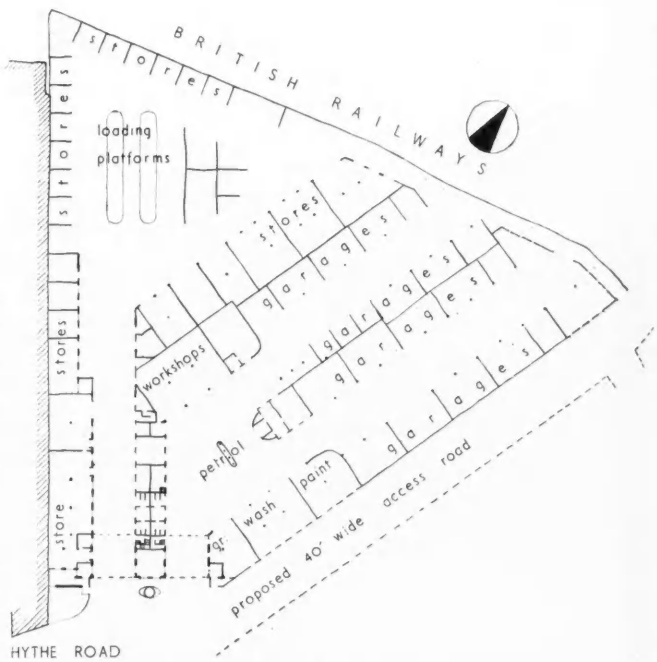
Builders: Hammersmith Borough Council (Direct Labour Organisation)

Building Manager: E. NORTH

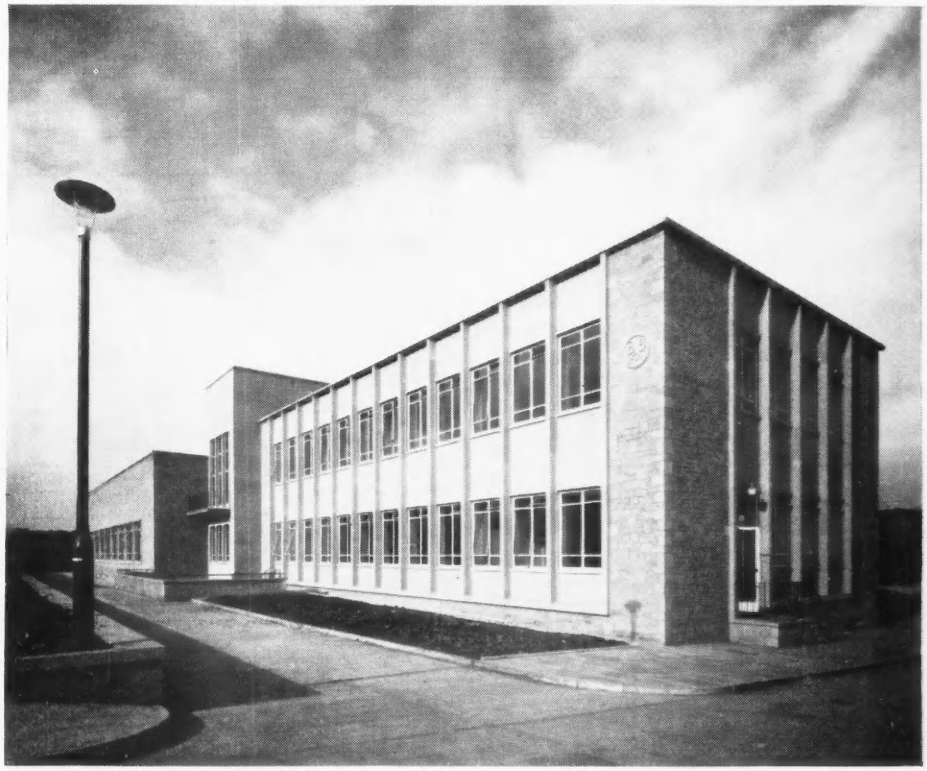
THIS building was erected for Hammersmith Borough Council, and was designed to provide separate transport and highways depots. Each required large and readily accessible storage and work space areas, but each is run by a small staff requiring only small office and other accommodation. Access to the site was limited to the narrow frontage forming the south boundary. The cost (final account) was £139,879.

Subcontractors & Suppliers :—

Reinforced concrete, Diespeker and Sons, Ltd.; metal windows, Ideal Casements, Ltd.; roller shutters, Shutter Contractors, Ltd.; electrical, London Electricity Board; reconstructed stone, Malcolm Macleod and Co., Ltd.; heating engineers, Comyn Ching and Co. (London), Ltd.; wall tiling, A. Bleakley and Co., Ltd.; petrol installation, Avery-Hardoll, Ltd.; weighbridge, Saml. Denison and Son, Ltd.; vehicle lift, Laycock Eng. Co., Ltd.



LAYOUT PLAN. Scale: 1 in. = 120 ft.



From the south, the facing is Crossland Hill stone, snecked rubble and ashlar on the tower

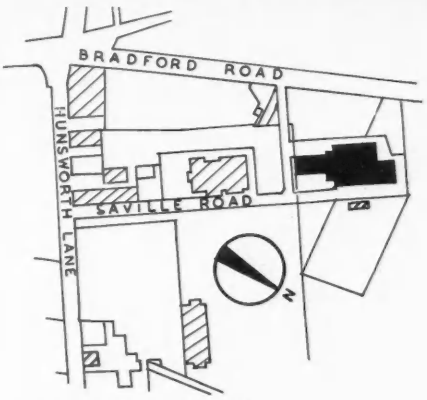
RESEARCH LABORATORY

Cleckheaton, Yorkshire

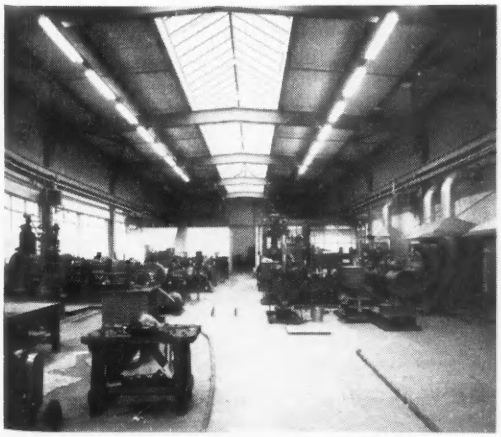
HUSBAND & Co.,
Architects & Consulting Engineers

L. T. BOYMAN, FRIBA, & J. E. T. LITTLER, ARIBA,
Senior Architects

JOHN RADCLIFFE & Son, Ltd., Builders



SITE PLAN. Scale: 1 : 5,000

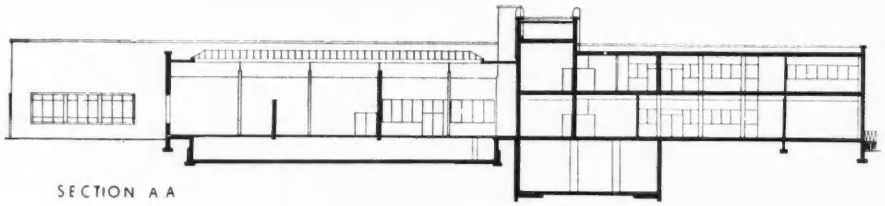


Large pilot laboratory

THE building, designed for British Belting and Asbestos, Ltd., occupies a site bounded by the Bradford Road to the south-east and existing works to the south-west; to the north-west and north-east lies open country broken by trees, hedgerows and dry stone walls typical of the district.

The building has been planned to receive future extensions by means of an additional floor to the administration block and longitudinally to the north-west in the case of the large single-storey laboratories.

The heating of the building is by means of low-pressure hot-water radiators in the administration and central

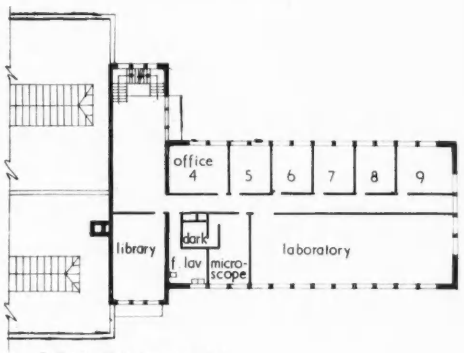


SECTION A A

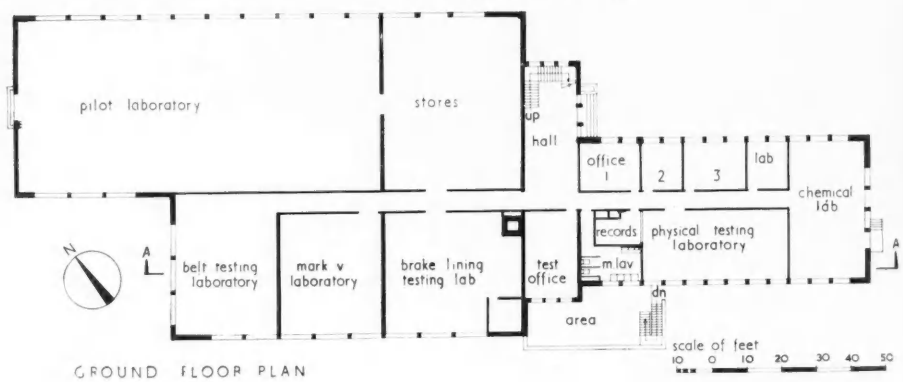
blocks and unit heaters in the single-storey laboratories.

The multi-storey portion is a steel frame structure with precast reinforced concrete beam, slab floor and roof units. The single-storey portion, the two parallel laboratory blocks, are also steel frame structures; owing to the large spans involved and the functions of the laboratories, steel portal frames have been used with provision for an overhead gantry crane in the long pilot laboratory and the reuse of an existing overhead power-operated crane in the Mk. V laboratory.

The roofs of the single-storey laboratories are constructed of 3 in. thick wood-wool slabs.



FIRST FLOOR PLAN

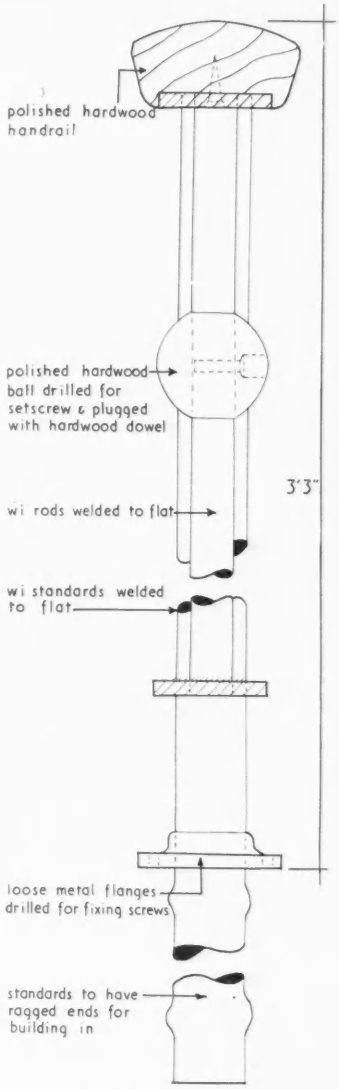


GROUND FLOOR PLAN

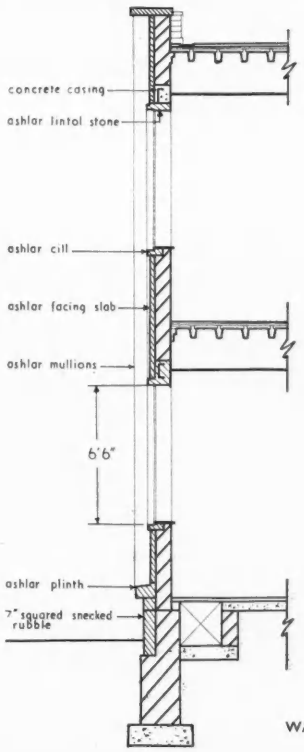
PLANS & SECTION
Scale:
1 in. = 48 ft.

Entrance hall

Main staircase


polished hardwood handrail
polished hardwood ball drilled for setscrew & plugged with hardwood dowel
3'3"
wi rods welded to flat
wi standards welded to flat
loose metal flanges drilled for fixing screws
standards to have ragged ends for building in

BALUSTRADE DETAIL.
Scale: One third full size.



WALL DETAIL. Scale: 1 in.=8 ft.

Research Laboratory Cleckheaton, Yorkshire

Subcontractors & Suppliers :—

Structural steel, metal staircase, Thos. W. Ward, Ltd.; precast concrete floor units, Hull Concrete Stone Co., Ltd.; sanitary fittings, W. E. Faver, Ltd.; mirrors, etc., S. J. Downham and Co., Ltd.; metal windows and lantern lights, Mellowes and Co., Ltd.; folding metal doors, Bolton Gate Co., Ltd.; ironmongery, Parker, Winder and Achurch, Ltd.; wood block floors, Hollis Bros., Ltd.; balustrades, entrance gates, W. Garratt and Son; letters (metal), Neville Watts and Co., Ltd.; venetian blinds, curtain rails, J. Avery and Co., Ltd.; commemoration plaque, Johnson Engravers, Ltd.; library furniture, C. and R. Wall, Ltd.; library fitted furniture, C. H. Gillam and Sons, Ltd.; electrical installation, W. D. Wilson and Son (Bradford), Ltd.; heating installation, Rosser and Russell, Ltd.; terrazzo floors and cubicles, Conways, Ltd.; timber flagpole, Chas. Pearson (Hull), Ltd.; tanking and roofing, Neuchatel Asphalte Co., Ltd.; chemical drainage ware, Prodorite, Ltd.; overhead travelling crane, Vaughan Crane Co., Ltd.; painting and decorating, W. Hamilton and Sons; internal gas and water services, A. Higginbotham and Sons, Ltd.; laboratory furniture and fittings, Ralph Cuthbert, Ltd.; tentest fibre board ceilings, Manchester Slate Co., Ltd.; glass blocks, Pilkington Brothers; Dulux paints, I.C.I.; water paint, The Walpamur Co., Ltd.; light fittings, The Merchant Adventurers, Ltd.; street lighting standards and external fittings, G.E.C. and Falk Stadelmann; Hy-rib ceilings, Trussed Concrete Steel Co., Ltd.; duct covers, Dover Engineering Works, Ltd.

British Architects at Oxford

(*Continued from page* 97.)

seemed logical to try to eliminate the more obvious faults first and tackle the others later on.

Mr. Womersley continued: I cannot help feeling rather worried by what appears to be an intrinsic assumption on the part of many architects that every building will be designed with lightweight wall cladding and a felted roof. Alvar Aalto gave his own view recently in no uncertain terms, in effect he said: 'What nonsense to ask me whether I am modern or old fashioned. I know what materials are available to me, I know what my problem is and I design my building accordingly.' Architecture should be just as simple as that. If we have really equipped ourselves to be architects, and not merely curtain wall exponents or pre-cast concrete advocates, we should have no prejudices but start each programme with an open mind. In this introduction, therefore, I hope among other things to suggest some conditions where light-weight materials appear to be appropriate and others where they do not.

Reinforced Concrete

Remarking that reinforced concrete construction in many forms had firmly established itself as a permanent means of building, particularly suited to exploitation by mechanical plant in large-scale development schemes, Mr. Womersley added: 'Subject to almost elementary but all-too-often neglected attention to detailing, surfacing and workmanship, here is a field of endeavour open to individual expression which avoids the snags at present connected with many of the lighter-weight forms of structure. For instance, out of 101 prototypes of new traditional houses introduced towards the end of the war, it was found that only about seven remain of any moment. Experience with the many types used over the past 10 years shows that the main troubles were those of moisture penetration, condensation, low thermal insulation and poor sound insulation. With some of the metal-cladded types high maintenance costs were unavoidable. Of the types now predominating, one has a light steel frame with brick walls, one uses no-fines *in situ* concrete, and the other five use precast concrete for frames and panels. Of greater significance is the fact that all six concrete types have been further successfully developed to play an important part in multi-storey flat construction.

'It is clear, therefore, that not only have these concrete buildings stood up well to durability tests but, by virtue of the Ministry of Works' insistence on capital costs being comparable with traditional building, they have also met the economic challenge.'

Mr. Womersley then showed a series of slides illustrating various types of multi-storeyed systems, including the 'Reema,' the Copenhagen 'Rodovre' system, and the 'Prometo.' This last, he said, was thought to be the speediest multi-storey dwelling system yet produced. In use at Birkenhead on an 11-storey block designed by Mr. T. A. Brittain, the Borough Architect, it employed sliding shuttering, raised by a series of hydraulic jacks, for a box-frame type of structure, the whole of one leg of a T-shaped slab-type block going up at the rate of one storey in two days—one day for the walls and the next day for the floors. In this respect it beat many of the Continental schemes using sliding shuttering where, although walls went up at a prodigious rate, insertion of the floors took quite a long time. The contract time for this 11-storey block of some 240 maisonettes costing £617,000 (about £2,500 per dwelling) was a mere 12 months. It would seem likely that with more experience the cost might be reduced. The system was operated under licence from a Swedish engineer by Messrs. Wm. Thornton, of Liverpool.

Architect-Engineer Collaboration

In a reference to his own scheme of multi-storey flats and maisonettes at Park Hill, Sheffield, Mr. Womersley stressed the need for greater collaboration between architect and engineer at the early design stage and of the added value of bringing in the manufacturer and contractor at that stage also. In showing a slide of a model of his Park Hill scheme, he said that the desire had been to produce a strictly repetitive structural system which would provide for a variety of dwelling types from bed-sitting room flats for single persons to family maisonettes for five persons. A staircase core was common to all four alternative schemes put forward by the architects to the engineers.

The model of the selected scheme showed the exposed concrete frame, balcony and cladding treatment. Although the building was of 12 or 13-storeys in height throughout a substantial part of its length, careful analysis showed, said Mr. Womersley, that there was nothing to be gained by lightweight cladding. The panels were of facing brick in differing colours, and the balcony fronts were at present concrete. So far as weight was concerned, because of having a well-designed structure, whereby the central 'H' frames took the wind pressure, column sizes were only 16 in. by 14 in. With a tower crane or two on the site, it was an easy matter to haul up a few loads of bricks. Thus we had got a cladding which was cheap, was reasonably easy to build, would entail few maintenance worries and would be domestic in scale. The tender price for the scheme of nearly 1,000 dwellings was £2,000 per dwelling, including central heating and the Garchey system of refuse disposal, internal site roads, services and landscaping — very little more than the cost of two-storey houses with similar amenities.

Lightweight Cladding

If ever there appeared to be a classic case for the use of lightweight panels, it was surely in cross-wall construction, where the load of floors and roofs were transmitted to the cross walls, and there was thus every desire to reduce the weight of front and rear wall panels. However, results showed that the weight of the conventional panel or brick-work and windows could be carried to the cross walls merely by a slight thickening of the edge of the floors. The extra cost of so doing was negligible in comparison with the extra cost of most of the lightweight panel systems. 'In connection with a scheme for four-storey maisonettes I persisted for a long time with an enthusiastic firm of metal window manufacturers to produce a metal-framed panel of standard window section filled in with light materials. The result in cost per two-storey panel is £195 for the latter as against £117 for a conventional cavity wall of 4½-in. brick and 3-in. thermalite inner leaf,' said Mr. Womersley, who added: 'Admittedly other types of panel, such as timber framing with either rendering on expanded metal or hardwood strip facing, are considerably cheaper than the metal-framed panel with proprietary materials, but none, in my opinion, gives the same value for money or preserves the same permanent appearance as the conventional brick panel. They may, however, serve to speed erection and give variety of appearance.'

Leaving housing (the small building unit where apparently no lightweight cladding except timber panels can compete with brick or concrete), Mr. Womersley turned to the larger buildings. In the case of power stations, omnibus garages and large factories the boot may be on the other foot, he said. So far as power stations are concerned, whilst there are undoubted advantages in using large factory-made components to provide a umbrella for plant, thus leaving good facing bricks and brick-layers available for housing human beings, the case for a saving in capital cost has not apparently been made. The following is the observation of an architect who has probably been concerned with as many power station projects as anybody: 'Five years or more ago we were stressing that a light-cladded building for power stations was cheaper than traditional building. Today I am sure it would be difficult to prove such a case unless you could effect a considerable reduction on the cost of the structural frame and the foundations.' The lack of a clear-cut capital saving is perhaps disappointing but nevertheless the other advantages—savings in steel in secondary structural members (there is apparently little saving, because of reduced weight of cladding, in the primary structure), savings of site labour, speedier plant erection and occupation — are sufficiently vital to make out the case for lightweight claddings.

Roofs

His final references, said Mr. Womersley, were to two large omnibus garages, one completed and the other in course of construction. They illustrated, in general, two completely different approaches to structure in solving an almost identical problem and, in particular, the use of bituminous felt roofing under two very different sets of conditions. Showing a slide of the first garage, constructed with reinforced concrete columns with a barrel-vaulted roof of shell concrete 2¾-in. thick on cambered

edge beams of prestressed concrete, Mr. Womersley said that the concrete barrels were covered externally with mineralised felt stuck directly on the concrete and dressed down over asphalt gutters. Five years after completion, huge blisters had formed on the south-west side, probably due to trapped moisture plus the action of the sun, and one of them had duly burst. The condition of the felted flat roofs was much worse. Here the felt was laid on a 2-in. sand/cement screed on a 6-in. r.c. slab. It seemed that solar heat and standing puddles had caused heavy deterioration, again within five years, and complete reinstatement, probably with asphalt, would be necessary.

The roof of the other garage was three-layer felt on ½-in. insulating board on an aluminium deck. The big differences between the conditions for felt on this and the previous concrete roof were that in the second roof: (a) The deck is essentially of dry construction; (b) the insulation is prevented from getting wet by the simple expedient of not laying it if it is raining and, when laying, following up immediately with the first layer of felt; and (c) the surface is finished with a ½-in. layer of limestone chippings to obtain maximum solar reflection. It is therefore expected that given reasonable maintenance, the life of the roof will be comparable with that of the walls.

'Finally,' said Mr. Womersley, 'the warning finger. Here is a slide showing reinforcement in an important civic building by an eminent architect in times when there was no financial stringency. It shows the need for constant vigilance—not in design only but in construction. Materials and workmanship must be fully up to standard. And I would emphasise that enthusiasm to exploit new materials and techniques will bring us more credit if it is tempered with a balanced judgment on what is fit for a particular purpose and what is economically sound.'

'Services'

IN support of his contributed paper, MR. A. W. CLEEVE BARR, ARIBA, said: I shall attempt to say a few words about economies in services. If we can economise and save money here and spend it on other aspects of building—whether on pitched roofs or flat roofs (obviously we must not do wrong things and use materials which are going to fail in a few years' time) and if we can extend our range of materials beyond the traditional materials in order to have a much wider architectural alphabet as a result, even at a little extra cost, by saving money on services, then I think we shall be doing the right thing.

As the physical standards of living increased, so we could expect a further increase in the services, said Mr. Barr. He would stress the need for keeping a sense of proportion about the services, for when capital economies are the order of the day, only the architect on behalf of his client could ensure that the money available was reasonably distributed between the various elements of a building, and that all the many specialists involved in the design of services did not go off, each on his own, designing in a vacuum according to the standards of his profession but without regard to the common standard set by the client for the job in question.

Speaking on the question of water supply, Mr. Barr drew attention to the increasing consumption of water (32 gallons per head in 1938; 46 gallons in 1956) and said that whatever was felt about restrictive by-laws, this was a difficult background against which to press for by-law relaxations which might in any possible way lead to a wastage of water. He then illustrated by slides a number of points which linked up with the basic theme of the paramount importance of effective early design stage collaboration between architects, structural engineers and works services engineers.

Among the points made was the need for considering provision of services when planning, illustrated by a view of a crawlway of over 500 ft. which had been provided in a school for 600 children at a cost of about £10 per ft. run. Another slide illustrated the off-peak electric floor-warming system in flats at Kirkcaldy. The LCC was now adopting that method of heating for tall blocks but intended to use a more economical wiring system consisting of mineral-insulated copper-sheathed wiring embedded (and not rewirable) direct in the cement floor screed.

Mr. and Mrs. J. Lewis Womersley take tea with Mr. Eric Boothroyd. To the right, Mr. and Mrs. R. E. Enthoven and Mrs. Michael Waterhouse (under umbrella)

'Finishes'

IN his introduction to the paper on 'Finishes,' MR. J. C. EASTWICK-FIELD, BA, ARIBA, showed a number of colour slides which reminded of the rather different situation which faced us today from that when materials were chosen from a limited range available locally which were probably cheap and known to last. Nowadays reliance was no longer placed on local availability of materials, and our knowledge of the great variety at our disposal was less well established.

Maintenance might well be required, Mr. Eastwick-Field continued, because of failure of materials to weather well or to withstand the elements. Sometimes they failed because they were wrongly put together. Sometimes they required maintenance because they weathered badly, looked awful and one could not stand their appearance. In showing slides illustrating these points, Mr. Eastwick-Field said that concrete could be satisfactory to his mind if it was given a good surface pattern artificially. We should not be led astray however because concrete in strong sunlight with a clean atmosphere could look magnificent. In England, concrete seemed to be most successfully used in panels with exposed aggregates.

Next there was the interesting problem of breakages of coloured glasses and of clear glass when backed by a cill wall. BRS digests showed that breakages resulted from stresses set up in the glass when the temperature built up in it became excessive. 'It happens,' said the speaker, 'that there has been less trouble with wooden framing than with metal framing as was shown in a school we designed where by a fluke we chose wood; there have been no breakages even though the glass was wired, which is thought to be another factor causing breakages.'

Renderings at low level and walls and columns which got scribbled on were other points to be watched when considering housing estates. Naturally, some maintenance must be expected on all buildings, and must be considered legitimate. Painting was the most important and was the greatest single cost, but the amount varied enormously on different kinds of building. An alternative was to try to find materials which did not require attention. For walls, self-coloured renderings were a good example; natural untreated wood was another; one softwood, Western Red Cedar, and a number of inexpensive hardwoods were safe without treatment. Aluminium was much advertised as being maintenance-free but one had to be careful not to accept that without thought. The Festival Hall cost £1,000 annually to clean the windows and glass and also £1,000 to clean the alu-

minium. On the other hand, hardwood windows, though more expensive initially, might prove economic in the long run. An interesting new idea was to use galvanised steel unpainted.

As to washing, this was becoming an accepted maintenance item to be done at intervals of five years. Where there were glass façades, architects should make provision for washing. His final slide showed that Nature had provided that Portland stone should be washed naturally by the rain so that it assumed very beautiful contrasts. 'A building like Somerset House demands little maintenance and its beauty remains, I think, a challenge to us,' concluded Mr. Eastwick-Field.

Discussion

OPENING the discussion following the introductory papers, MR. HUBERT BENNETT (Architect to the London County Council) said that the architect's responsibility was not confined to capital cost, for he must remember that from the day the building was opened he was running his client into maintenance costs. The taxation on buildings which had been referred to mainly affected industrial structures but not local authorities, who were, nevertheless, vitally concerned with maintenance. For example, each time the Albert Bridge was repainted it cost £13,000.

He had estimated, said Mr. Bennett, that averaged costs showed that a public building costing £113,000 would take about £1,100, or 1 per cent., to maintain annually. Of this one-third, say £350, went on general repairs and two-thirds on renovations. That was an alarming figure; it meant that something in the region of £800 was going on painting. He had made some investigation into 1955-56 figures for internal painting by local authorities and had found that the price for three-coat work per yd. sup. was 5s. 2½d. Yet by doing winter work one could get figures which were surprising, and an average over 75 contracts showed prices varying from 8s. to 2s. per yd. sup. An average cost was 3s. 11d. Clearly, by putting work in hand out of the summer recess not only did one get keener prices but enabled painting contractors to keep their labour engaged throughout the year. These benefits made some disarrangement of school-teaching schedules worth while.

Coming to the third that went on general repairs, Mr. Bennett thought it was not always necessary to pay National Federation rates. 'There are,' he said, 'two federations of employers, the National Federation and the Federation of Master Builders. If you investigate, you will find that average figures fall by from 49 to 39 per cent. when quoted by the Master Builders. Go into this with the Federations, and you may find that terms which are not just the ordinary terms can be secured.'

MISS JOCELYN ADBURGHAM took up the point mentioned by Mr. Womersley about the roof of the bus station. She was surprised that anyone should expose such roofs to our elements.

MR. B. P. WINTON LEWIS thought the papers were a challenge and an indictment. Were architects, he asked, giving the best possible service to clients? Capital costs could be kept down by preplanning; architects must be firmer in handling their clients and get the maximum information about what was required.

MR. JOHN WADE (Victoria, British Columbia) brought greetings from British Columbia, where he had been pleased to see the President and Secretary when on their tour. He wanted to endorse Mr. Eastwick-Field's views on the use of wood. Varnishing was fraught with difficulty. Yet he wished they in British Columbia could use some of the materials so readily available in the United Kingdom. One omission from the papers seemed to him to be mention of the use of the lifting slab method of building.

MR. J. GODFREY-GILBERT described a Dutch building roofed with three-ply bituminous felt covered with pebbles. Round the edge of the parapet roof the felt was tucked up but not in, the gap being sheltered by a zinc flashing. This allowed the roof to 'breathe.' He had obtained from a Dutch architect details of an American technique of laying roofing felt on vermiculite screeds. It was as follows:

'The roofing felt can be laid as soon as the vermiculite concrete has been placed and the surface is dry. A sand/cement topping is NOT laid.

'With three-ply, the first ply is nailed to the vermiculite screed. With five-ply, the first and second plies are rolled out and nailed at the same time. A special type of galvanised nail is used which is driven through metal caps to prevent tearing and which clinches in the concrete when struck with the last blow of the hammer. The remaining plies are mopped on in the normal manner, and the whole is carried up the side of the parapet wall to a point where copper or zinc flashings overlap.

'The roofing felt edge is covered by the flashing, but the latter should only be nailed at sufficient intervals to secure the felt and not in such a manner as to prevent any vapour which might arise from the screed from escaping. The objects of this method are:

'(a) To cut down to a minimum the waiting time before the laying of the roofing felt:

'(b) To provide a means of escape for the moisture in the vermiculite screed.

'It is not possible for any great vapour pressure to develop, nor for moisture to penetrate the ceiling below.'

MR. T. R. RAYSON said that most important and pertinent was the remark that local character in architecture had disappeared. In every county it was the same. 'May I put in a plea for taking more interest in local character? If we do that, then forms of construction should be in character with the neighbourhood. Things that may do in some places will not do, for instance, in the Cotswolds.'

MR. LEON BROWN (Washington DC, USA) said that no mention had been made that he had noticed of the electrolytic processing of aluminium, nor of porcelain enamel. Answering this, MR. EASTWICK-FIELD said that he took the electrolytic process of treating aluminium as meaning anodising. This had been used abroad but there had as yet been no evidence of its durability. Porcelain (or vitreous) enamel had been referred to and he thought it was a material which could be made a lot of use of.

MR. LESSLIE K. WATSON referred to the use of aluminium windows in Cambridge University Library which were as good today, he said, as when first put in 21 years ago. The rubber flooring put in at the same time, however, had cracked like parchment and that was something we should keep in mind.

MR. MATTHYS TAUTE: Surely we as architects have partners in crime? May we not pass on our hair shirts to the manufacturers and builders?

MR. J. E. TYRRELL said it was clear that high capital costs resulted in low maintenance costs. In order to comply with the ceiling figures for school places prescribed by the Ministry, some local authorities were being forced to use substitute materials. To accept legislation which meant high maintenance costs was wrong, and the argument should be forced on the Chancellor that instead of tax relief on maintenance, there should be relief on capital costs, so saving manpower spent on repairs. To this MR. MITCHELL replied that several Chancellors had been pressed on that one, and he felt that the best hope now lay in educating clients, a task which architects were especially qualified to carry out.

Debate adjourned until the following morning.

Friday's Discussion

WHEN discussion was resumed on Friday morning, THE PRESIDENT announced that discussion would be grouped under the heads of the four papers, taking them in reverse order to that in which they had been presented. Speaking on the subject of **Finishes,** MR. W. A. ALLEN (BRS) said that the knowledge of how our buildings behaved was one of the vital factors on which practical work should be done. Local authorities and the Ministries should lead, but any results they got should not be retained for themselves but reported for the benefit of the profession. Paintwork was one such subject; we ought to try to extend its duration of life, and also to arrest tendencies to pattern-staining. It was probably not generally recognised that sharp arrises contributed greatly to paint decay. The paint at the arris was bound to be thin and it was there that failure often began. On the assumption that designers moved across from sharp to round arrises, the life of paintwork could be extended probably by two years, thus saving £5m. annually at least.

MR. D. W. SHARPE raised the question of anodising aluminium window sections which, he thought, was hardly necessary except in special areas. Thin aluminium panels were a different matter, however, for they would hardly accept any penetration by the anodising process and in appearance rapidly became very monotonous. In one case where they had been used, panels while otherwise satisfactory had almost entirely lost their colour after three or four years. Anodising was an expensive process and should be permanent when done, but permanency did not seem to have been achieved.

MR. N. SETON MORRIS said that it might not be known generally that Oxford University's policy was to have aluminium windows with the idea of saving on maintenance; by so doing they had saved £2,000, and on that basis the windows would very soon pay for themselves.

MR. CLEEVE BARR said he believed that organic dyes were used in the UK for anodising, whereas elsewhere inorganic dyes were employed which seemed more permanent. Vitreous enamel really resolved itself into a question of cost.

MR. G. D. NASH (BRS) quoted from Mr. Eastwick Field's written paper the following: 'It is no longer always possible nor desirable to use only those materials which from long experience are known to satisfy, but if new ones are to be used the risk of failure must be reduced as far as possible.' This, thought Mr. Nash, was an excellent epitome of the problem they were discussing. Many of the newer materials provided surfaces which were impervious to moisture from within as well as outside. In curtain walling it was necessary to contrive behind the external finish some form of ventilating. Structures must be allowed to breathe. Structure must be analysed very critically; details of construction should be looked into very carefully, possibly by manufacturers but also by architects. We needed a combination of new materials and

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Encounter in the Science Museum during the tour, led by Mr. A. Llewellyn Smith, of Victorian Oxford. To right is part of the group photographed in the SCR at Keble College. Second from the left is the Bursar, Mr. C. V. Davidge, seen describing the wallpaper

good construction; if we didn't get this neither should we get good buildings.

Quality of Lifts

Speaking on **Services,** MR. CLEEVE BARR raised the question of underfloor heating on the panel system. He also spoke on lifts. Were these, he asked, becoming of too high quality? They were certainly costly. The engineers had gone ahead and produced really high-class lifts, but ought we not to require a simpler job?

MR. NASH said that no single answer on the questions raised by domestic heating could be given. Coal burning was more efficient than electricity produced by coal burning. We did know that an era of cheap electricity through nuclear methods was round the corner, but we did not know how far off the corner was.

MR. TOWNSEND (Oxford) expressed concern with the problems raised by over-simplification of plumbing. In theory, if the installation was correct and it was used intelligently, it could be all right, but everything depended on the installation. To instal plumbing services without traps and against the by-laws was not in the best interests of client, architect or public.

MR. HILTON WRIGHT endorsed a point in Mr. Cleeve Barr's paper regarding the early collaboration between the architect and the services engineer. This was just as essential as early collaboration between architect and structural engineer. The biggest need, however, was the dissemination of data. Could the RIBA manage to arrange at regular intervals some form of exchange of information between architects, services engineers and the firms who actually carried out the work? If so, it would be a great help, especially to the private architect. Some form of post-graduate course on services would also be valuable.

MR. W. A. ALLEN took up the point about plumbing made by Mr. Townsend. The BRS, he said, had often been accused of playing safe but in single-stack plumbing they really had taken a forward look.

MR. J. E. K. HARRISON expressed the view that there was too great elaboration on lifts which were a very costly service anyway. Some types of lift were so elaborate that they appeared to have been designed to frustrate those intent on suicide. Could not something simpler and cheaper be made available?

MR. ERIC BIRD (Building Centre) referred to a 4-5 day course on architecture and building management he had directed recently in the North. Much good information came out of these small groups. Could not this plan be extended? Taking up Mr. Harrison's point about elaborate lifts, he described a type he had seen in Sweden which had one gate only but appeared to be perfectly safe.

MR. CLEEVE BARR felt that such things as single-stack plumbing, spray valves in washbasins, and simplified lifts could help to cut the cost of services. He agreed very much with Mr. Bird's idea of small study conferences, and 'thought the RIBA crazy' to have let Mr. Bird go.

Disseminating Technical Data

In discussion on **Structures,** MR. R. BADEN HELLARD said that as a profession architects were organised in small pockets. Wherever architects got together, as at the Conference, a fund of valuable data was formed, but we could not stand on each other's shoulders. Could not the RIBA *Journal* run a technical supplement? It might be costly, but it should be done.

MR. A. G. CHURCH, on the subject of flat roofs, said that in Singapore he had eliminated parapet walls and cantilevered the roof slab over. He would like the BRS in their research of liaise not only with architects in England but with those having overseas experience. Construction which stood up to extremes of temperature and climate overseas would stand up to English climatic conditions. MR. NASH said this was already being done.

MR. CLIVE PASCALL came back on the question of distribution of data. In a busy practice it was difficult to get time to read all that was issued. At the recent American Centennial which he had visited he noticed that there was a first-class exhibition of materials on view with technical people who were honorary members of the Congress in attendance. Was that not something we might copy? He wholeheartedly agreed with the remarks previously made about the cost of lifts.

MR. MATTHYS TAUTE, who said he had practised in Cape Town, felt that while the UK had much to teach the Colonies, there might be one or two things the Colonies could offer in return, and one was that in Cape Town there was no compulsion to have a water-storage tank at all; you could take water direct off the main. But here the MWB threw up their hands at the idea. In South Africa they invariably had an engineering consultant which meant that one got competitive tenders for the frame.

MR. L. DE SYLLAS said that within the past six years there had been a revolution in the interchange of techniques between the United Kingdom and Commonwealth countries. This had come about since the BRS had set up a Colonial liaison branch.

MR. W. M. WOODHOUSE (Colonial Office) offered the help of that branch in discussing problems affecting overseas design.

MR. BRYAN WESTWOOD described a system of scaffolding for shell roofing which avoided ground-based scaffolding.

MR. JOHN STILLMAN said he hoped that the Conference would not be known as the reactionary conference. Brick and tile seemed best to serve small building works with limited load-bearing requirements, but for larger buildings with big spans architects would rightly experiment with new systems. Could architectural journals be persuaded to publish analyses of buildings which had been up ten or more years? There were three reasons for the continuance of the existing wet heavy brick-building techniques in multi-storey work. First, site labour was cheap; second, there was no practicable standardisation other than for doors and purpose-made windows; and third, we did not think big enough. Town planning was on too small a scale and buildings themselves were on too small a scale.

MR. WOMERSLEY agreed. There was a tendency, he thought, to do part of a building scheme instead of doing the whole job at once.

MR. D. W. SHARPE put in a plea for the use of zinc as a roof covering.

MR. GODFREY-GILBERT spoke of the magnificent bricks obtainable on the Continent, whereas in Great Britain we so often got black bricks full of clinker. He had once been interested in colour renderings, but now felt he had been wrong, at any rate for London. We could do much more with brick if we could get the colours and variations they got abroad, by using different bonds and pointings. The average brickwork produced in this country was shameful, and the architect had to spend too much of his time in courting the foreman bricklayer to get good laying.

'Going for the Chancellor'

In the discussion on **Finance,** MR. T. MITCHELL referred to Mr. Tyrrell's plea of the previous day that a resolution should be addressed to the Chancellor of the Exchequer deploring the effect of taxation on good building. He (Mr. Mitchell) felt that he had given an off-hand answer to Mr. Tyrrell and would like to say that he and the other principal speakers agreed with him.

MR. KENNETH EMMETT said it would be

helpful if the BRS could give information on how to plan for a specific period of years. It would also be useful if the water supply boards would reorganise their methods of charging on pipe runs. His authority (Smethwick) had recently saved themselves the equivalent of £40,000 on the capital cost of erecting a £1¼m. building by using electricity. He wished to endorse the suggestion that the allied societies might set up study groups to take up points in greater detail.

MR. C. G. STILLMAN asked what was meant by the term 'tolerable standards'? In order to get down to MoE cost limits, were we in fact building 'sub-standard' schools? The speed with which architects had to get out schemes made it very difficult to get time for proper consideration of problems. We had, he knew, 'cost' standards, but were we overlooking 'performance' standards? Architects were driven to using certain roofs and floors because they were dictated by cost consideration rather than by choice. The public were not really aware of this, and more should be done to make them understand this problem.

MR. MITCHELL felt that the best, perhaps the only way was for architects themselves to speak of these things to their clients.

MR. J. M. AUSTIN-SMITH took up the suggestion of improving interchange of information. It was a fact that one did get the truth when discussing in small, intimate groups, and the RIBA could do a valuable job by co-ordinating the work of such groups as allied societies might set up.

MR. JOHN BRANDON-JONES mentioned that use of the roof triangle in pitched-roof buildings was a good and economic method of carrying services. Such practical tips did not seem to penetrate schools of architecture. He himself was a believer in tradition which he defined as being something which did not copy the past but which was the handing on to the future of the best of past experience.

MR. G. L. GREAVES said that if architects had sat down to devise a conference which was to be as bad as possible for the profession, they could hardly have done better! No one had mentioned rating which could operate against good construction. Building societies could also act as a brake on progress. He had had occasion to design a house which did not comply with by-laws but which the MoHLG in its wisdom had passed. The building society surveyor came along and said: 'This isn't a proper way to design a house,' and promptly withdrew the finance. The house then had to be redesigned at greater cost and with less efficiency.

MR. HUGH ROBERTS supported views put forward by Mr. Austin-Smith. He would commend the establishment of study groups on a local basis which would pass on the conclusions to the RIBA. Architects in this matter were falling behind other professions.

MR. CHURCH DE LA PORTE said architects should learn from other professions. Finance should be the servant not the master, and architects should be able to convince people that they had something to give them.

Vote of Thanks

MR. DAVID BOOTH proposed a vote of thanks to the four principal speakers for the 'meaty' papers they had prepared. In these papers was material for much future research for they were based on valuable experience. The Conference was fortunate in having been presented with such carefully presented and compiled data.

Seconding, MR. R. W. CAVE said that he had gained the impression that so far the only completely efficient form of building was that based on brick and tile! Might he enter the plea that architects coming to Oxford to build might look carefully at Oxford buildings which had been going up since about 1200 AD; they would see that there was no use of rubble. But today we found yards of rubble where formerly there was that smooth, lovely ashlar so typical of Oxford.

The vote of thanks was carried by acclamation, and MR. MITCHELL, responding on behalf of the speakers, said it was possible that a new form of roofing for flat roofs would come into being in view of the apprehension which bituminous and asphaltic roofings had recently aroused.

Tea party. Left to right: Mr. D. E. Church, Miss Jill Mathias, Mr. B. L. Hook, Miss Judith Bell, Mr. N. Thompson and Miss Jeanette Payne

The Conference Dinner

'Architectural Opportunities in Oxford'

PROFESSOR BASIL SPENCE, OBE, ARA, ARSA, made a strong plea for the use of a contemporary style even among the historic buildings at Oxford when he proposed a toast to Oxford at the Conference dinner at the Town Hall on July 11. The President, Mr. K. M. B. Cross, MA (Cantab) was in the chair.

'Oxford should be the great leader of design and the great patron of architecture, as she was in the past,' said Mr. Spence. 'In Oxford we see a quality of material, a quality of craftsmanship and a quality of thought that have survived the massacres of modernisation and the encroachment of industry. Their humanity and scale still create a wonderful sense of enclosure and scale, so that Oxford and her sister University at Cambridge have given to the whole world a model of what the background for scholarship should be.

'We must remember, though, that the buildings we so admire as historic to-day were fresh and virile when they were built; and I must question whether imitation is the right way to maintain that great tradition.

'We should rather, surely, try to copy the mode of thought of the designers of the past, to capture their humanity and scale, and then try to create something fresh and virile in those terms.'

Mr. Spence continued: 'This is a plea, of course, for the contemporary style—though not for a lack of respect for what we already have from the past. There are pitfalls of which we must beware—but we are generally led into these when an architect does not think about the thing he is designing so much as about himself.

'There are also tremendous opportunities. In Helsinki I have seen how a beautiful modern building can stand as a good neighbour to a beautiful historic building, adding up to something still finer—just as the contrasting historic styles in Oxford add to its richness. If it can be done in Finland, surely it can be done here.'

THE MAYOR OF OXFORD, Ald. R. F. Knight, responding, said that already in Oxford there was new building which showed imagination and a high quality of thought — and other building which did not. The city was well aware of the value of architects of originality and imagination, and its own School of Architecture sent out men of whom the whole city was proud, men with the courage and vision to build finely in their own style.

An Architectural Challenge

THE VICE-CHANCELLOR, Mr. J. C. Masterman, responded for the University. He spoke of the great opportunity for architects created in Oxford by the need for more accommodation—new laboratories, and libraries, new colleges. Immediately there was the opportunity offered by the development of 'two of the finest sites in Oxford,' in the Keble-road triangle and the Manor-road site.

'This is an opportunity,' said the Vice-

Chancellor, 'but it is not such an easy one as in other places; for we must hope that the new will be designed to fit in with the old. We in Oxford set an enormous value on the buildings we have got—a value that is proved perhaps by the enormous appeal which has been launched for their preservation; but while we wish to preserve what we have, we are also conscious that Oxford is a living place, needing new growth as well as preservation.'

Mr. Masterman went on to appeal to those architects who would work on the development of Oxford to respect two things—trees, with their great power to harmonise buildings of different styles, and the opinion of amateurs.

'Do not despise the opinion of the amateurs here,' he said. 'We have not only a great love for the buildings of this city; but also, since we live here, a certain feeling for their atmosphere. We want Oxford to grow as a living thing, but as the living thing we know and love."

The toast to the Royal Institute of British Architects was proposed by SIR JOHN WOLFENDEN, Vice-Chancellor of Reading University, who said that he would like to underline the importance of the amateur—the client—from his experience of Reading's enormous University building programme. At the same time, the amateur must recognise the skill of the architect.

'Architecture, I have come to realise, is first of all a programme to enclose a certain amount of vacant space in an agreeable way—a considerable effort of the imagination. An architect, however, cannot be simply a dreamer, but a man who has the skill to see that his dreams are actualised, that the innumerable people concerned in its realisation are working towards the same actuality.'

The response for the RIBA was made by MR. KENNETH CROSS, president, and MR. E. STEWARD SMITH.

MR. CROSS gave an account of his Commonwealth tour. 'Why did we go?' he said. 'We had three objects. The first we described as being architectural fellowship and goodwill as we thought that sounded nice; second we were interested in registration and education and we wished to be sure that the Associate examination would stand for the same standard everywhere. We suggested that there should be one uniform architectural examination with a small supplementary test in local practice. Our third object was to increase contact between the overseas branches with the central Society.'

Mr. Cross said he and the Secretary had been surprised and delighted by the great interest with which their proposals had been greeted.

Among those present were:

Sir Thomas and Lady Bennett; The Hon. Lionel and Mrs. Brett; The Right Rev. the Lord Bishop of Oxford (Dr. H. J. Carpenter) and Mrs. Carpenter; Miss Jenifer Cross; Sir David Lindsay Keir & Lady Keir; Sir George & Lady Schuster; Mrs. Basil Spence & Miss Gillian Spence; Miss A. M. Trundle (Melbourne); H. K. Ablett; Miss Jocelyn Adburgham; Mr. and Mrs. L. W. M. Alexander; Professor J. S. Allen; Mr. and Mrs. C. H. Aslin; Mr. and Mrs. A. W. Cleeve Barr; Mr. and Mrs. S. F. Barrell; Mr. and Mrs. Charles Batey; Mr. A. Geoffrey Bazeley; Mr. and Mrs. G. J. Beard; Mr. and Mrs. Hubert Bennett; Eric Bird; Mr. and Mrs. Humphrey C. Boardman; T. S. R. Boase; Mr. and Mrs. David Booth; Eric Boothroyd; Mr. and Mrs. A. T. Bradford; Mr. and Mrs. John Brandon-Jones; Mr. and Mrs. Derek Bridgwater; Mr. and Mrs. Leon Brown (USA); Lt.-Col. H. P. L. Cart de Lafontaine; R. W. Cave; Mr. and Mrs. E. G. Chandler; Mr. and Mrs. Frank Chippindale; Mr. and Mrs. Harold J. Coates; Mr. and Mrs. J. A. Coia; Mr. and Mrs. Harold Conolly; Mr. and Mrs. Peter McG. Corsar; James A. D. Cox; Mr. and Mrs. Clifford Culpin.

Mr. and Mrs. Harold A. Dod; Mr. and Mrs. Peter Dunham; Mr. and Mrs. J. C. Eastwick-Field; Mr. and Mrs. R. E. Enthoven; Mr. and Mrs. W. John Farmer; Mr. and Mrs. E. A. Ferriby; Mr. and Mrs. A. G. Sheppard Fidler; Mr. and Mrs. R. A. Fisher (Canada); Professor and Mrs. Desmond Fitzgerald; Mr. and Mrs. J. H. Forshaw; Mr. and Mrs. S. Colwyn Foulkes; Mr. and Mrs. Norman H. Fowler; Mr. and Mrs. A. M. Gear; Mrs. Molly Gerrard; Mr. and Mrs. G. L. Greaves; Mr. and Mrs. H. Desmond Hall; Mr. and Mrs. J. E. K. Harrison; R. Baden Hellard; Eric G. V. Hives; Cecil Howitt; Mr. and Mrs. Leonard C. Howitt; Mr. and Mrs. Herbert Jackson; Mr. and Mrs. C. W. King; E. Lassetter; Mr. and Mrs. Cecil Leckenby; Miss Judith Ledeboer; Mr. and Mrs. Ian Leslie; Mr. and Mrs. R. A. H. Livett; Mr. and Mrs. P. H. P. Lovell.

Mr. and Mrs. Kenneth Macrae; Mr. and Mrs. D. H. McMorran; E. D. Jefferiss Mathews; Mr. and Mrs. Paul V. Mauger; Mr. and Mrs. Tom Mellor; Mr. and Mrs. Thomas Mitchell; Noel Musgrave; Mr. and Mrs. F. J. M. Ormrod; A. E. Parrish; Mr. and Mrs. Clive Pascall; Mr. and Mrs. David Percival, Mr. and Mrs. Robert Potter; Mr. and Mrs. Thomas Rayson; Mr. and Mrs. Charles Richards; Mr. and Mrs. Harold A. Rolls; Arthur Saint; Miss M. V. Sankey; Mr. and Mrs. R. Duncan Scott; Mr. and Mrs. L. J. Selby; Peter Shepheard; J. R. Sheridan-Shedden; A. H. Smith; A. Llewellyn Smith; Mr. and Mrs. E. Stewart Smith; Mr. and Mrs. E. T. Ashley Smith; Mr. and Mrs. W. J. Smith; C. D. Spragg; Mr. and Mrs. F. R. Steele; Mr. and Mrs. K. A. Stevens; Mr. and Mrs. M. Taute; Mr. and Mrs. Ernest F. Tew; Mr. and Mrs. T. H. Thoms; Mr. and Mrs. C. H. Thurston; D. W. Tolson; Mr. and Mrs. C. J. Tomkins; John Wade (Canada); D. Garbutt Walton; Professor and Mrs. Basil Ward; A. B. Waters; Mr. and Mrs. J. Fletcher Watson; Mr. and Mrs. Lesslie K. Watson; Mr. and Mrs. Bryan Westwood; Mr. and Mrs. George Whitby; Mr. and Mrs. C. S. White; H. R. Williams; Lady Wolfenden; Mr. and Mrs. J. Lewis Womersley; Mr. and Mrs. W. M. Woodhouse; Mr. and Mrs. Hilton Wright.

'An amazing achievement when you consider they had no elevenses, no Woodbines, no atomic power, no College of Advanced Building Technology.'

News of the Week

The Rome Scholarship

THE Faculty of Architecture of the British School at Rome announce the award of the Rome Scholarship in Architecture for 1957 to Mr. Roelof Sarel Uytenbogaardt, BArch (Cape Town).

Mr. Uytenbogaardt, who is 24, completed his architectural course at the University of Cape Town in 1956, receiving a First Class with distinction. He lives in Northern Rhodesia.

The Rome Scholarship in Architecture, for which the subject in the final competition was 'A Parliament House,' is provided for by an annual grant made to the British School at Rome by the RIBA.

An exhibition of the competition designs is being held at the RIBA, 66, Portland-place, London, W1, until July 26, between the hours of 10 a.m. and 7 p.m. (Saturdays 10 a.m. to 5 p.m.)

RIBA Appointment

AN ARCHITECT or other candidate with knowledge of building science and technology is required for an appointment as assistant secretary on the headquarters staff of the Royal Institute of British Architects.

The duties will be primarily concerned with the secretariat of the science committee and other activities under the committee's direction, but the successful candidate will also act as technical editor of the RIBA *Journal*. The salary will be at a starting point according to age and experience on a scale of £1,250 a year rising by annual increments of £50 to a maximum of £2,000. Details from the Secretary, RIBA, 66, Portland-place, London, W1. Closing date August 10.

Sir Patrick Abercrombie

MR. CLOUGH WILLIAMS-ELLIS, FRIBA, will be giving a radio appreciation of the late Sir Patrick Abercrombie, architect and town planner, at 9.15 p.m. in the BBC Home Service on Thursday, July 25, under the title of 'The Genial Wizard.'

Honorary Member, IAAS

THE COUNCIL of the Incorporated Association of Architects and Surveyors announces that S. Gio Ponti, the eminent Italian architect and designer, has been elected an honorary member of the Association.

Housing Management

THE Minister of Housing and Local Government, Mr. Henry Brooke, has appointed a sub-committee of the Central housing Advisory Committee under the chairmanship of Ald. A. F. Bradbeer, with the following terms of reference:

COMING EVENTS

SATURDAY, JULY 20.

INSTITUTE OF BUILDERS.—Licentiate Discussion Club. Visit to John Lewis store, Oxford-street. 2.30 p.m.

WEDNESDAY, JULY 24.

THE ARCHITECTURE CLUB.—Reception at Fenton House, Hampstead-grove by permission of National Trust. 7.30 p.m.

'To review the present arrangements for the management of the housing estates of local authorities and in particular the functions of housing managers, and to make recommendations.'

The other members of the sub-committee are Miss A. D. Boyd, Dr. R. Bradbury, FRIBA, Mr. P. S. Cadbury, Mr. P. L. Leigh-Breese, Mr. K. Marr-Johnson, FRICS, Professor D. C. Marsh, Dr. A. H. Marshall, Sir Parker Morris, Ald. A. R. Nobes, Councillor H. M. Pattinson, The Dowager Marchioness of Reading, Mr. F. H. M. Sargent.

Organisations and individuals wishing to submit evidence to the sub-committee are invited to write to the joint secretaries, Miss M. Empson and Mr. K. Lightfoot, at the MoHLG, Whitehall, SW1.

Essex v. Herts at Cricket

THE SECOND ANNUAL cricket match between the Hertfordshire and West Essex Chapters of the Essex, Cambs and Herts Society of Architects, held on July 7 at Cottered, Hertfordshire, resulted in a win for Hertford, who scored 198 runs to West Essex Chapter's 97 runs. During the match the teams were entertained to a magnificent tea, for which Mr. Clifford Culpin, chairman of Hertford Chapter, thanked Mr. and Mrs. George Matthews, Miss Matthews, and members of the Women's Institute. The chairman of West Essex Chapter, Mr. J. L. Barnard, suitably responded.

Downside Abbey School

A CONTRACT for the rebuilding of that part of Downside Abbey School, Stratton-on-the-Fosse, near Bath, which was seriously damaged by fire in the autumn of 1955, has gone to Messrs. S. H. Burgess, Ltd. It involves the erection of two new class-rooms, study and dormitory blocks with various ancillary buildings. Work has already begun. The architects are Messrs. Brett, Boyd and P. Bosanquet of Watlington Park, Oxford, and the quantity surveyors Messrs. Davis, Belfield and Everest of 9, Ashley-place, SW1. The Royal Academy drawing of the scheme was given in the May 24 issue of *The Builder*.

FROM 'THE BUILDER' OF 1857

Saturday, July 18, 1857

APPROPRIATION OF SMITHFIELD.—One of the reasons given for the establishment of a market in old Smithfield is that it will be the means of restoring the value of the property which has been deteriorated by the removal of the meat for living animals. It is unfortunate that no great good can be done without some amount of damage. In considering the position of a new metropolitan dead-meat market, it ought to be remembered that our advanced sanitary knowledge, the facilities of railways, etc., will not much longer permit the slaughtering of the animals required for human food in the midst of a vast population. It is with pain that we mention facts which threaten the covering up of this ancient historical site which has until comparatively recently, been an open space for the use of the citizens of London for more than 1,000 years.—*From an Article.*

FIRM PRICE TENDERS

National Federation's Recommendations

MR. LEONARD WALDEN, president of the National Federation of Building Trades Employers, speaking in London on Monday (July 15) said that the National Federation was in favour of firm price tendering, but they had doubts about the timing of the introduction of this 'experiment' by the Government. They were, however, wholly in favour of planning in advance in building contracts, but this was a subject in which a lot of education was necessary.

The National Federation, continued Mr. Walden, did not doubt the ability of the Ministry of Works and other Government Departments properly to pre-plan a job, but they did have doubts on the ability of many local authorities and with private architects to do the same. In this connection they were asking for the co-operation of the industry's Regional Joint Committees to explain to architects and others concerned what was required if pre-planning was to be a success.

The Federation's considered views on firm price tendering were presented in the following statement:

NFBTE STATEMENT

The National Federation of Building Trades Employers has given consideration to the decision of the Government to revert to the practice of firm price tendering and to advise local authorities and the nationalised industries to act similarly. The uncertainty of future price trends, particularly in respect of those basic building materials in which the costs of production and delivery are substantially affected by the charges laid down by the nationalised industries, makes it doubtful whether the Government's decision was rightly timed. If, however, the practice of firm price tendering is to be accepted by the industry, the Federation wishes to emphasise to all concerned that, if it is to be successful, certain conditions—to which reference is made in the following paragraphs—must be fully observed by building owners and their professional advisers.

Two conditions were attached to the Government's decision, namely, that the estimated contract period should not be more than two years and that the works should be thoroughly planned in advance.

In its Explanatory Notes on the Minister's statement the Ministry of Works laid emphasis on the following points:—

(i) if a contractor is to be able to quote a keen, firm price he must be given a clear indication of the work required and also of the time within which the work is to be done;

(ii) any variations of the work after the contract has been placed must be kept to the minimum;

(iii) tenders must be accepted quickly after they have been received.

In order that practical application may be given to the above general principles, the Federation wishes to make it clear:—

(a) that the two-year period should be reckoned from the date for delivery of tenders and tenders should be open for acceptance within two months, after which they should be subject to confirmation or adjustment by the contractor;

(b) that the expression 'thoroughly planned in advance' as applied to a building contract involves the provision of complete documentation at the stage of tendering, viz.:—(i) Bills of quantities prepared in accordance with the principles of the Standard Method of Measurement from the proposed contract drawings; (ii) a site plan; (iii) ¼ in. scale drawings; (iv) all such details and drawings as may be necessary to enable the contractor to commence the works; (v) an adequate specification.

(c) that such complete documentation should be followed by strict adherence to the terms of the contract, especially in regard to:—(i) The early provision of all further drawings and details necessary for the execution of any part of the work; (ii) the prompt nomination of sub-contractors and suppliers; (iii) the issue of architect's instructions involving variations; (iv) the prompt preparation of accounts, particularly the final account; (v) the issue and payment of certificates.

The Federation agrees with the Ministry's view that firm price contracting, provided it is properly planned and administered, can be of advantage to building owners, who will know more closely in advance the cost of their jobs, and should also tend towards the speedier settlement of contracts and the attainment of more stable trading conditions in the industry generally. The Federation wishes to emphasise, however, that the expected benefits will not be obtained and the experiment of firm price contracting will not work satisfactorily unless the Federation's recommendations, as indicated above, are followed by all concerned.

Surrey CC Recommended to Reject Ministry's Proposals

SURREY works and buildings committee is one of the many authorities which has now decided that it cannot adopt at the present time the procedure for fixed tendering proposed by the Minister of Housing and Local Government in a recent circular.

The committee, in its report to the council, says it has given careful consideration to the Ministry's proposals in this connection.

It notes that under such an arrangement a contractor would expect to be provided with complete detailed particulars and drawings before entering into a system of contract. The committee says it considers that under the present system of annual building programmes agreed between the council and sponsoring Government departments it would be 'quite impracticable' to achieve this without accepting a lengthy standstill period during which no contracts would be undertaken.

It says that in these circumstances, whilst appreciating the advantages of fixed price tendering, it has come to the conclusion that it cannot recommend the council to adopt at the present time the procedure proposed by the Ministry under this circular.

BBC Talk

DR. NIKOLAUS PEVSNER will be discussing the architectural exhibition which opened in Berlin on July 6, at 10.10 pm in the BBC Third Programme on Tuesday, July 30. The main feature of the exhibition is the building of a whole quarter in the centre of Berlin by a number of architects from various countries.

New Planning Policy for Central London

RECOMMENDATIONS IN REPORT TO LCC

THE London County Council, at their meeting on Tuesday (July 16), had before them a report of the Town Planning Committee which made recommendations for a new planning policy to ease congestion in Central London. Following are extracts from the report:

On July 17, 1956, the Committee reported that a survey of new offices in Central London provided or proposed with planning consent during the period from mid-1948 to December 31, 1955, showed that an increase of one-fifth to one-quarter over the present office population would result. At the same time loss of resident population had continued. It was estimated that over one million people travelled by public transport to work in Central London each day; this number was growing and more people went to work by car. The Committee drew attention to the prospect of increasing congestion, heavier demands on public transport and growing traffic and car parking difficulties; they observed that in the City of London offices and commercial uses had superseded residential uses almost entirely and tended to supersede others, and it would be undesirable to allow such a process to change the character of the West End. The Committee announced their intention of the examining methods both of restraining office development and of increasing the resident population.

In a further report which came before the Council on Tuesday (July 16) the Committee state—'In approaching this problem we have borne in mind the importance of London as a world, Commonwealth and national centre of commerce, an importance which is enhanced by the growth of world air traffic and the development of London's airport. Any embargo on office development is therefore out of the question and we have looked for a policy which would allow the continued development of headquarters of industrial and commercial firms in London while limiting the space available for routine clerical functions which could as well be carried on elsewhere.'

Office Development

The Council's development plan as approved by the Minister of Housing and Local Government, already contains provisions designed to limit the extent of office development and to help safeguard the character of Central London. The plan also embodies the general policy of decentralisation of population and employment. (Industrial employment is already decreasing.) The Town Planning Committee point out, however, that it is clear from the office survey that the control of office development should be more stringent and residential development encouraged.

The Committee therefore recommend the Council to approve new standards of control of development in Central London which would:

Reduce the present maximum size of 'employment producing' buildings (mainly offices) which could be put on sites in many parts of Central London and so stem the tide of increasing employment;

encourage 'mixed' development—including flats, hotels and hostels as well as offices—on sites in suitable areas where the maximum limits to 'non-residential' development are reduced;

encourage developments (e.g., multi-storey garages) which tend to reduce congestion on developments or which would help preserve the diversity of character of Central London (e.g., places of assembly, hotels and hostels);

not affect the rights of property owners under the Town and Country Planning Act 1947 or mean revoking any planning permissions already given.

Discussions with the Ministry of Housing and Local Government and other local authorities are proceeding to encourage office development in the outer areas near to where office workers live.

The Committee state that when an owner comes to redevelop a site in the area affected he may find that the conditions on redevelopment are more stringent than they would be under the existing plot ratio system; but existing rights are to be preserved and no planning consents revoked, and there should therefore be no burden of compensation on the Council; and that in framing the proposals they have had regard to the provisions of the development plan.

Residential Accommodation

The Committee consider that the 'mixed' development to be encouraged would provide opportunities for good design and result in new forms of buildings suitable in the area and able to add interest to the urban scene while arresting the decline in residential population. It is envisaged that the residential accommodation would be mainly in the form of flats for people who prefer to live in the central area, hotels, hostels, service apartments and so on. The child population coming from these new homes would be small and the requirements for schools, play-spaces, etc., would be much less than in the outer residential areas.

The Committee have consulted the Corporation of the City of London, the Metropolitan Borough Councils affected, adjoining planning authorities, the British Transport Commission, the London Transport Executive and the London Chamber of Commerce. Their reception of the proposals has been very favourable; there have been no dissentients to the general principles.

The Committee state: 'Our proposals, if adopted, will complement the endeavours which the Minister of Housing and Local Government and some of the neighbouring planning authorities are making to encourage office development in the suburbs and outer areas where office workers mainly live and in the new and expanded towns. We understand that the Ministry has asked some of the other planning authorities in the London Region to give all possible help and advice to office firms who may wish to make such a move. A regional policy for office decentralisation, however, on the lines of the already well-established policy for industry, can only succeed by persuasion and the use of existing planning powers, and the Council's officers are considering, with those of the Ministry, methods of drawing attention to the advantages of decentralisation.

'We consider the scheme we are now submitting to be an important contribution towards preventing an increase in congestion when considered in conjunction with the provisions of the development plan to maintain residential uses of land in the central zone and to prevent the change of use of residential buildings to offices. Other measures, e.g., road improvements, schemes for new railway works, provision of car parks and car parking within buildings, the introduction of street parking restrictions and the staggering of office and shopping hours, will contribute to the same end. There will be an opportunity to consider the adequacy of the measures already taken and now proposed to counteract congestion at the time of the review of the development plan in 1960.'

OBITUARY

Charles Marriott, HonARIBA

THE DEATH on July 13 of Charles Marriott deprives the arts of one of its foremost critics. A man of many parts and of a lively mind, Marriott had interested himself in many things, photography and the novel among them, before becoming art critic to *The Times* in 1924, a post he held until the outbreak of the war. Always a fair critic with a forward look and especially kind to the talented young, Marriott wrote well and pungently, and not only for the Press. His books on *Modern Art* (1917), *Augustus John* (1918) and *Modern Movements In Painting* (1920) were a prelude to his period as *Times* art critic. From 1938-39 he was Sydney Jones lecturer in art at Liverpool University. In 1924 he brought out *Modern English Architecture*. His was indeed a full life. To his son, Mr. Basil Marriott, and his daughters much sympathy will be extended. He died in Bristol where he was born in 1869.

W. J. Donger, FRIBA, FRICS

THE DEATH occurred, on July 14, at his home at Winchester, of Mr. William James Donger, FRIBA, FRICS. He was in his 70th year.

Clean Air Exhibition

The Coal Utilisation Council has designed and built a portable Clean Air Exhibition for use in areas which may be or have been declared a smokeless zone. Its purpose is to show local authorities, the building trades and professions, and the public how they may continue to use solid fuel for heating and cooking without smoke.

THE SIZE OF A BRICK

Industry's Preference for 4½ in. Module

THE Brick Development Association, in a statement issued on July 9, expressed preference for a national module based on 4½ in. rather than 4 in., but considered that more research was needed before a final step was taken. The statement, which was briefly reported in our last issue, was as follows:

The British building brick industry has been following the various discussions on modular co-ordination with the greatest interest. It is now some years since the sizes of common building brick were standardised in this country; indeed perhaps it may be said that the building brick is the most important example of a near-modular unit already in full production and of almost universal application throughout the country. In view of this the industry is pleased to see that in the recent recommendations issued by the Modular Society the position of brick work as affecting the building industry at large is taken into full consideration.

It will have been noted that these recommendations envisage a compromise between the proposed 4 in. module and current brick sizes. So far as current investigations on this subject have led, the brick industry is at present inclined to the view that such a compromise may work out to the disadvantage of the building industry as a whole. In view of the wide use of brick for all kinds of contemporary building in this country it considers it desirable to make its views on the subject known.

In doing so, the industry wishes to emphasise its keen interest in the proposals, and its desire to co-operate and assist in any form of standardisation which will in fact lead to cheaper building without impairing aesthetic considerations.

1. The industry agrees that a decision to adopt any module must be governed by the prime consideration that its adoption will lead to an improvement in efficiency and a reduction in the cost of building.

2. The industry is of the opinion that the case for a 4 in. or any other module requires to be proved as far as a reduction in building cost is concerned. A 4 in. module could at the outset at any rate lead to an increase in the cost of bricklaying, either by an additional cost of cutting or by the adoption of uneconomic brick sizes. There is reason to believe that the various compromises which have been adopted to get over such difficulties in other countries have not proved too satisfactory in practice—notably in the USA.

3. It has been suggested that the adoption of the 4 in. module is reasonable because it approximates to the 10 cm. module which has been generally adopted on the Continent. This suggestion appears to the industry to be illogical for the simple reason that 4 in. does not equal 10 cm. and the difference is significant.

4. This significant difference in the two modules would in their opinion need to be fully considered by all manufacturers of building components before an adoption could seriously be considered. It could in particular have adverse effects on trade as between this country and the Continent, especially if the proposal to adopt a European common market were to become a reality.

5. If the ultimate intention is to go over to the metric system (or to alter the length of the English foot rule to correspond with a metric size), it may well be thought that so radical a change could take some decades to bring about. The industry are of the opinion that to adopt a 4 in. module as an interim measure would not be in the best interests of the building industry, and that a national module based on 4½ in. would be preferable. The industry is aware that some re-design of the family of brick sizes could be advantageous, especially for facing work.

6. Finally, in view of the prime consideration at (1) above, the industry is of the opinion that the impact of the adoption of any particular module on building costs needs to be the subject of research before any final step is taken by the British Standards Institution. The industry is desirous of co-operating to the full in any such investigation, which it considers should be primarily conducted by the Building Research Station, with the assistance of such other research associations (with which the building materials industries, including the building brick industry, are now so well equipped) who may be able to contribute.

CIVIL ENGINEERING CONTRACTS

Growing Use of ICE Conditions

OVER 60 per cent. of Britain's local authorities use the Institution of Civil Engineers' Conditions of Contract for letting their civil engineering contracts. This is disclosed by a recent survey undertaken by the Federation of Civil Engineering Contractors, who now state that since the current fourth edition of these conditions was issued in 1955 the number of local authorities using them has grown from 871 (50 per cent.) in 1955 to 1,105 (63 per cent.) in 1957.

A statement issued by the Federation adds: 'The ICE Conditions of Contract, which include forms of tender, agreement and bond, have been agreed jointly between the Institution of Civil Engineers, the Association of Consulting Engineers and the Federation of Civil Engineering Contractors, and are recommended by these bodies for general use in connection with works of civil engineering construction.

'There are, of course, great advantages in using a form of contract whose terms are well known and understood. In addition to the many local authorities who use them, the ICE conditions of contract are used by the Metropolitan Water Board, the Central Electricity Authority and the British Transport Commission. Recently, too, the Ministry of Transport and Civil Aviation decided to adopt these conditions of contract for all the works under the road programme and, by agreement between this Ministry, the Scottish Home Department and the Local Authorities' Associations, the conditions are used by all local authorities for trunk and grant-aided road works. Some big road contracts, including the Preston by-pass and the Stretford-Eccles motorway, are already being undertaken under these conditions.'

'ENAMELLING TECHNIQUES'

Applications to Cladding of Buildings

MR. T. J. McARTHUR presented a paper on 'Enamelling Techniques' at a meeting of the Vitreous Enamel Development Council held, on June 25, at the Building Centre, WC1. The application with which the paper was concerned was that on the metal clad building, with particular emphasis on steel. Following are extracts from the paper.

'Designs of units for architectural use should be in accordance with sound engineering principles,' Mr. McArthur said: 'Proven practice in this form of construction makes provision for expansion and contraction between units when applied to any structure, weather-tight assembly when applied to a building exterior, and arrangement for the fitting of all anchorages and attachments of positive non-corrosive alloy type. Holes required to receive the work of other trades should be provided in units in the course of metal fabrication prior to enamelling. Tolerances allowable on fabrication are of the order of plus or minus 1/32 of an inch.

'The general details of panel design,' he went on, 'should follow the requirements for enamelling. Flanges of adequate depth with relation to panel area should be provided. For right angle bends an external radius of one eighth to three sixteenths is desirable. Partial flanges along one side, cut outs, notches, and large holes in flanges must be avoided. All lugs or angles welded to large pieces should be two or more gauges lighter than the main piece. The general rules of enamelling design concerning the avoidance of double thicknesses of metal, welded stiffeners and braces apply. Fabrication must be uniform and complete prior to enamelling.

'Welding should be done with a welding metal of the same composition as the enamelling iron. Gas welds whilst ideal for corners provide some difficulty on large areas because of potential distortion. Spot welding correctly done and arc welds are permissible. Exposed welds must be ground smooth and flush and surfaces processed to remove all contaminated matter resulting from the welding operation. All metal surfaces for enamelling must be thoroughly prepared by cleaning and acid pickling by methods and to standards recognised as good commercial practice.

'Ground coat application should be such as to ensure complete coverage of all surfaces of the section. Where the dipping process is used care should be taken to minimise drain lines or heavy beading showing on the finished surface. All exposed surfaces must have cover coat applied over the ground coat. It is also necessary to apply a protective cover coat over the ground coat on the backs and other concealed areas for protection against weathering. Enamelled faces must be of uniform finish and free from surface defects.'

TOWN PLANNING DECISIONS

Permission Granted to Build Flats, etc., at West Enfield

SUBJECT to the provision of a service road, and the exclusion of the proposed maisonettes, the Minister of Housing and Local Government has allowed an appeal by the Ancell Property Co., Ltd., against the refusal of the Southgate BC, acting for the Middlesex CC, to permit the erection of 10 shops with maisonettes over, 40 flats, and 48 garages on land adjoining Oakwood Underground Station, West Enfield. Permission had been refused by the Council on the grounds that (1) the density would be excessive in relation to that of the surrounding development; (2) maisonettes over shops would be out of keeping with the development approved for the opposite side of the station, which is single-storey lock-up shops; (3) no provision had been made for cars waiting in front of the shops; and (4) the height of the proposed flats was excessive and should not exceed a maximum of three storeys.

The appeal site consists of 2.68 acres of vacant land to the south-west of Oakwood Underground Station and the railway line, which lies above ground at this point. Adjoining the station to the north-east are six one-storey shops in course of erection, whilst to the south-east of the site there are two-storey dwelling houses. The site slopes from north-west to south-east with a fall of about 20 ft., and at the South-eastern end the railway embankment is approximately 8 ft. above the site.

At a public inquiry held on April 16 the appellants contended that their plans had been prepared to form the best setting for the Oakwood Underground Station, which had been designed by Mr. Charles Holden, and they had tried to achieve the best architectural layout giving open development. With regard to density, inquiries had been made of the local planning authority, who had stated that the density for the site was 50 habitable rooms per acre. Plans conforming to this had been prepared and the County Planning Officer was satisfied that the proposed scheme was within the density provisions of the development plan. Concerning the Council's objection that maisonettes over shops would be out of keeping with the development approved for the opposite side of the station, which was single-storey lock-up shops, the appellants did not consider it essential that there should be symmetry on both sides, but if it were essential they were of the opinion that both sides should be made the same height as the proposed maisonettes; this would be possible in view of the way the shops were being constructed. The Council's objection that no provision had been made for waiting cars in front of the proposed shops would be met by the provision of a service road. In their opinion, the height of the proposed five-storey flats was not excessive and would not adversely affect amenities. Owing to the slope of the site towards the south-east the flats would not be noticeable from the north, and from the south they would only be seen over the roofs of the existing houses. The proposed flats would necessitate only one entrance and exit, whereas if the site were covered with two-storey buildings a through road would be necessary. Three-storey flats would be expensive to build and would look very insignificant on such a low site.

On behalf of the Council it was stated that the Oakwood area had been developed as a suburban residential area, and its relatively low density of development of two-storey houses with a very limited amount of three-storey buildings was one of its main characteristics; the limited amount of development still to be carried out in the area should, in their opinion, be similar in density and design. The appellants' proposal included the erection of five-storey flats which, owing to their design, were equal in height to a six-storey block. Immediately opposite, and adjoining, there were two-storey houses, and the tall flats proposed would be out of keeping with the surrounding development.

The appeal site adjoined Oakwood Underground Station, a building of good architectural design which should remain the predominant feature. The erection of tall flats and the provision of living accommodation over the proposed shops would detract from the appearance of the station.

In the course of his decision, the Minister says he does not consider that the height of the proposed five-storey flats would be excessive, particularly in view of the slope of the site towards the south-east, or that they would be out of keeping with, or detrimental to, the amenities of the surrounding development. He notes that the Council have already restricted development adjoining Oakwood Station to the north-east to single-storey buildings in order that it should not detract from the height of the booking hall, which is carried up as a central feature, and he agrees that in order to preserve the station as a predominant landmark, development to the south-west should be similarly restricted. He notes that a service road can be provided in front of the shops and he considers that this should be done.

Accordingly, the Minister has decided to allow the appeal to the extent that he hereby grants permission for the erection of 40 flats in four five-storey blocks, 48 garages and 10 single-storey shops on land adjoining Oakwood Underground Station, West Enfield, subject to the condition that the siting, design and external appearance of the buildings, and the means of access thereto, shall be as may be agreed with the local planning authority, or in default of agreement, as shall be determined by the Minister.

Rotherham Builder's Appeals Allowed

TWO appeals by Mr. G. C. Watson, of Watson's Estates, against Rotherham Corporation's refusal to grant planning permission for housing development in the Kimberworth area have been allowed by the Minister of Housing and Local Government.

The first appeal related to a plan to build 26 houses at Hungerhill-road, where the Corporation suggested a risk of mining subsidence and sought the retention of the land as an open space. The Minister notes, in the course of his decision, that the appellant is prepared to agree to an alternative strip of his land being allocated for public open space purposes, and the opinion which he expressed that any risk of subsidence arising from shallow mine working could be adequately met by suitable precautions in the construction of the houses. In allowing the appeal the Minister stipulates that details relating to the foundation and structure of the proposed houses shall be agreed with the local authority.

The second appeal related to the Corporation's rejection of the appellant's plan to build 34 houses on other land in Hungerhill-road. In this case, the Minister says he is of the opinion that residential use of the site would not seriously jeopardise the Corporation's open space proposals for the area and, because of the nature of the site, considers that it could be more suitably used for houses than as an open space.

Proposed Factory on Leatherhead Site: Permission Refused

THE Minister of Housing and Local Government has upheld, on appeal, the refusal of Leatherhead UDC to permit H. A. Farmer & Co., Ltd., to erect a factory for precision engineering purposes on a site at Woodbridge, Kingston-road, Leatherhead.

In the course of his decision the Minister states that while he accepts the appellants' contention that the planning of the county should be treated as a whole this does not preclude the application of special policies in districts with a special problem. The position of Leatherhead in the Green Belt makes it necessary to discourage development which might lead to the further expansion of the town, and in the Minister's opinion the Council has made a reasonable case for preserving this land for use by non-conforming industries already in Leatherhead. He notes that industrial land has been reserved for the re-location of non-conformers from the Kingston area, including vacant sites nearer than the appeal site to Kingston, and it had not been shown to his satisfaction that these would be very difficult to reach, and certainly not so much as to justify making an exception in this case.

Stone Quarrying, Glos.: Appeal Against Planning Refusal Rejected

AN appeal to the Minister of Housing and Local Government against a refusal of the Gloucestershire County Council to allow stone quarrying at the Old Quarries, Ford, has been rejected.

On April 16 an inspector for the Minister held a public inquiry into the proposal following the appeal by the Huntsmans Quarries, Ltd., and it was then stated that stone was wanted for work at Pershore airfield.

The Ministry now states that the Minister has dismissed the appeal. He accepted that the appeal site contained hardcore suitable for the works at Pershore Airfield and also useful quantities of walling stone. However, he agreed with the County Council's opinion that the extension of quarrying now permitted at Three Gates into the appeal site would be seriously detrimental to the attractive landscape, and he was not convinced that the dependence of the airfield work on the land in question was such as to justify quarrying in that prominent position. As for walling and building stone, there was no evidence that demand could not be met from

other sources, even if access to those was not at present open.

'The difficulties in meeting particular requirements have not been overlooked,' the Ministry informs the appellants. 'But it is the responsibility of the local Planning Authority in an area of high landscape value to require the clearest proof of mineral needs before permitting quarrying in exposed sites, and it is the Minister's view that such proof has not been brought forward and that the County Council's decision was correct.'

RENT ACT'S AID TO SLUM CLEARANCE

Human Problems Involved

OPENING the annual conference of the Housing Centre Trust in London on July 3, MR. HENRY BROOKE, Minister of Housing and Local Government, said that if all went well it should not be long before the Government's intention was fulfilled of getting 200,000 people a year out of unfit houses into good ones. He added: 'My hope is that the Rent Act, which comes into force in three days' time, is going to have effect in preventing other houses from slipping downhill and making fresh slums.'

Turning to the human problems involved in slum clearance, Mr. Brooke said that at one end of the scale there were the big county boroughs and cities which often had slum clearance areas acres wide with a constantly changing population.' As a rule it is not possible for them to know, when they first decide on a clearance area, exactly how many occupants they are going to have to deal with when the moment comes; and frequently they may find themselves involved in intricate legal matters when it comes to making the order and seeing it through. Working to a time-table and thinking in terms of re-housing hundreds or even thousands of people a year it is not always easy to keep the administration of slum clearance enlightened and kindly.

'Then at the other end of the scale,' he continued, 'you have the special problems of the villages and the countryside. The contribution of the local authorities in places like that to the slum clearance drive is a great deal more important than many people realise; one unfit house in every six throughout England and Wales is in a rural district. So often the task there is to hold the balance properly, and to get rid of the houses and cottages which are insanitary while not getting rid at the same time of the local traditions and way of life of the countryside through tearing people up by the roots.'

When replacing slums it was important to be sure that there was enough variety and flexibility in the ranges of houses and flats. Most local authorities had tended to look on the three-bedroom house as the standard article. He believed the time was ripe to enlarge the range.

In conclusion, Mr. Brooke said 'Shortage of sites, I know, is creating difficulties in several places, particularly the big cities. I think the British public has had enough of continuous urban sprawl. Of course, it is the checking of further sprawl which helps to create the site shortage problem. It means among other things that redevelopment has to be at higher densities than used to be adopted in olden days. It is a challenge and an opportunity for the architects.'

LCC

Future of Covent Garden

AT the meeting of the London County Council on July 16, it was reported that the General Purposes Committee had considered the Report of the Committee of Inquiry into Horticultural Marketing (to whom the Council submitted evidence in 1955) and also the observations of the Public Control and Town Planning Committees. The Minister of Agriculture, Fisheries and Food had invited the Council to submit its views on the Report, particularly on the part dealing with wholesale markets, and to indicate those proposals to which the Council attaches most importance. At this stage the Committee had confined their comments to the question of the siting of Covent Garden Market.

In its evidence to the Committee of Inquiry the Council stated that there would appear to be a case on planning grounds for the removal of Covent Garden Market from its present situation and that it considered that the possibility of using a site in the King's Cross area was worthy of further investigation. The Committee of Inquiry, however, recommended the creation of a new market to serve north-west London and the improvement and expansion of Brentford and Stratford markets; between them these markets could handle a good deal of the trade with retailers now done through Covent Garden.

The General Purposes Committee state that the grounds on which the Committee of Inquiry rejected the Council's view that Covent Garden Market should be moved were the financial difficulties involved, the inconvenience to traders and the difficulty of finding a site more suitable for market purposes, and uncertainty as to the volume of market trade for which accommodation would be required.

In favouring the alternative course of transferring the bulk of the retail trade to the secondary markets, including the proposed new one for north-west London, the Committee of Inquiry assumed that a site, satisfactory in size and ease of communication, could be found for the new market; that it would succeed in attracting a very substantial amount of the business now transacted at Covent Garden; and that there would be a contraction in the volume of produce physically handled at Covent Garden to such an extent that improvements and eventual rebuilding in a much smaller area would answer its needs.

The General Purposes Committee stated that the conclusion of the Committee of Inquiry appeared to rest very largely on assumptions. Even if these assumptions were correct, however, the Committee feel that the considerations which led the Council in its evidence to urge the removal from the centre of London of Covent Garden Market are of such weight that in their view no solution which would leave any part of the market in its present location would be satisfactory. They recommended the Council to express this view.

Family Homes in New Towns

THE Harlow Development Corporation has offered to lease to the Council for 99 years six sites, on each of which can be built a family home for seven children, and another site together with a house which can be used for relief staff. The children's homes will be designed and built by the Council and plans for these have been approved. The estimated total cost of sites, homes and equipment is £45,860.

The Basildon Development Corporation is prepared to sell to the Council seven sites, about one acre in total, on which it is proposed to erect six family homes, each for seven children, and a house for relief staff. The estimated cost of acquisition of the sites, including incidental expenses, is £6,750. Similar homes in the New Towns are already in use at Stevenage and Crawley.

PLASTICS EXHIBITION

An International Note

By Our Own Correspondent

THE 1957 British Plastics Exhibition is, for the first time, international in character. Organised by 'British Plastics,' an Iliffe journal, at Olympia from July 10-20, it was opened, after a formal flourish of trumpets, by Sir David Eccles, President of the Board of Trade.

The exhibition itself is a colourful one, containing many well-designed stands and displays, and at first sight there seems to be little of direct importance, if not interest, to the building trade. Notwithstanding the fact that there is hardly anything that we touch or use today that does not have plastics on it somewhere, basically that is true. However, by diligently searching, some new and interesting developments were discovered. For example there was the expanded polystyrene by Jablo Products Ltd., described recently in *The Builder*, a lightweight insulative material that can be stuck to the soffit of a single-skin roof to provide the necessary insulation; this product was shown coloured for the first time.

On the stand of Wallington Weston & Co., Ltd., were various Marley products including Marleyfilm, Marleyrail, the plastic handrail, and a new plastic floor tile with a very high finish and pleasant appearance. Thomas de la Rue included on their stand the entire range of 'Formica' patterns, over 80 in all, in sizeable pieces, as well as other examples of their products, such as Delaron chairs made by the new post-forming technique.

Other products to be seen included translucent corrugated roofing sheets, by Saro Laminated Wood Products, and Ashdowns, Ltd.; cold water piping by the Yorkshire Copper Works, Ltd., Mange Plastics Ltd., and the Telegraph Construction and Maintenance Co., Ltd. PVC coated synthetic fabrics are on the stand of Fothergill & Harvey (Sales) Ltd., who also have tropical and sub-tropical screen fabrics on view.

A wide variety of machinery, used in the manufacture of the various components that we take for granted today, was on show. The machinery varied in size from a sewing-machine-size electronic plastic welder to a several-ton-weight extruding plant. A great many of these machines seemed to come from the Continent, not a few from West Germany, and they all appeared over-large to the lay eye compared with the simple plastic mugs that popped out with monotonous regularity.

The Builder Review of PLANT & MATERIALS

Emulsion Paint Staining

ALTHOUGH the wide range of emulsion paint colours now available is adequate for most purposes it is never possible to satisfy all tastes from a standard colour range. For those who require individual colours, Walter Carson and Sons, Ltd., Grove Works, Lombard-road, London, SW11, have now produced a range of emulsion paint stainers. The six strong colours available are bright yellow, green, yellow ochre, black, red and blue. They are also suitable for the alteration of shade of 'Murapaste' washable oil bound water paint and ceiling distemper.

These stainers are sold in screw cap tubes.

Urinal Slab Joints

A patent vertical joint between the back slabs of urinals has been produced by Broad and Co., Ltd., 4, South Wharf, Paddington, London, W2. A leaflet is available from the manufacturers which illustrates and details the vertical seal.

New Short Hand Drill

For operation in confined spaces, the Consolidated Pneumatic Tool Co., 4, Church-court, Richmond, Surrey, have developed a new version of their CP9 hand drill. The new design provides an offset handle which reduces the overall length from 14¾ in. to 11⅛ in. and with the provision of shortened steels, the new tool is capable of being employed in extremly small working spaces.

Air-operated Saw

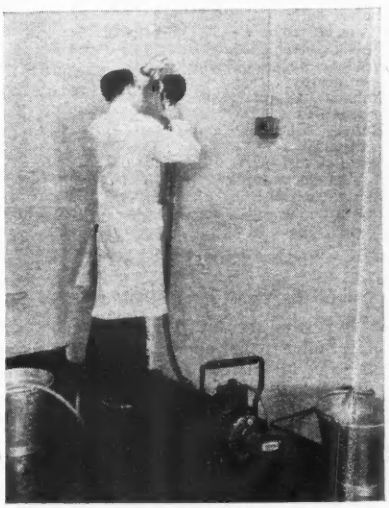
The 'Cengar' air-operated saw, by Cengar Universal Tool, Co., Ltd., 89, King Cross-street, Halifax, is a portable tool which has as one of its applications the sawing through of brick walls and mortar joints for the insertion of damp-proof courses. The air consumption is less than 6 cu. ft. per minute and it has a controllable speed from 0 to 1,100 strokes per minute at 100 lb. air pressure. Its stroke is 1¾ in. and non-standard nose pieces are available.

Laminated and Connectored Timber

A 16-page, loose-leaf brochure entitled 'Construction in Glued Laminated and Connectored Timber' has just been released by Rainham Timber Engineering Co., Ltd., Ferry-lane, Rainham, Essex. The first section describes the working properties of glued laminated timber and the advantages offered by this form of construction. This is followed by a number of pages of illustrations showing installations where bowstring trusses, stressed skin construction and interlaminated glued timber have been employed in such buildings as storage sheds, church halls, a laboratory extension, works canteen and dyehouse. The second section deals with bolted and connectored trusses and includes detailed drawings of the patent RTE folding roof truss which shows its ease of transport, storage and erection. Additional examples of these forms of construction will be the subject of further pages that can be inserted in the existing brochure.

Wall Grinding Machine

A recent addition to the Flextol range of flexible shaft-driven equipment is the Type ST 80 Junior wall grinding machine manufactured by Flextol Engineering Co., Ltd., The Green, Ealing, London, W5. It has been designed specifically to solve the problem of grinding terrazzo and other stone surfaces and to prevent the objectionable and injurious dust inseparable from dry sanding methods. The NR7/WF handpiece incorporates a central water feed, supplied from a self-priming pump driven from the electric motor. The rubbing head, which may be of the diamond-impregnated or carbide of silicon type according to the duties to be performed, is entirely enclosed by the anti-splash guard. A polythene tube takes away the grinding sludge and surplus water to a suitable container. Wall grinding by this method is a clean and safe operation, no protective clothing or face mask being necessary, and the minimum of cleaning of surrounding work is required at the conclusion of operations.



'Flextol' wall grinding machine by Flextol Engineering Co., Ltd.

Plastics in Building

Two applications for 'Lustrex' polystyrene in conjunction with concrete have recently been developed by Monsanto Chemicals, Ltd., 10-18, Victoria-st., London, SW1, both of which introduce interesting techniques into modern building construction methods. Lustrex T.6, specially developed for the extrusion of sheet, is being used successfully to form moulds for concrete shuttering. At the Bristol Corporation's Barton Hill Flats site Lustrex T.6 moulds were used to cast the concrete walls. The moulds measured approximately 4 ft. x 3 ft. A new technique in the construction of colourful, hardwearing terrazzo floors is now possible with the use of Lustrex pellets as the large aggregate.

TRADE NEWS

Regional Office

The Nuralite Co., Ltd., of Gravesend, manufacturers of Nuralite, have opened a regional office at 4, Blagrave-st., Reading. The manager is L. W. Maskell.

Change of Name

Mr. Ronald Lyon, chairman of Johnson Ireton, Ltd., announces that the company's name has been changed to Johnson Structures, Ltd. In line with this, Johnson Ireton Holding, Ltd., has been changed to Johnson Holdings (Mitcham), Ltd. The new companies' local headquarters remain unchanged at Arnold-rd., Tooting, London, SW17, and are controlled by the Ronald Lyon group head offices at Hersham Trading Estate, Walton-on-Thames, Surrey.

Polish Orders for Equipment

Orders to a total value in excess of £100,000 have been placed by Polish official purchasing agencies with the United Construction Machinery Co., Ltd., Horton-parade, West Drayton, Middx, which had the biggest exhibition stand in the British section of the recent Poznan Fair.

Orders Cut Stocks

A steady increase in the flow of orders for Weyroc woodchip board, by the Airscrew Co. and Jicwood, Ltd., particularly from the furniture industry, has reduced the company's stocks by 1½ million sq. ft. within the last 12 months. An increase of some 30 per cent. in the output of Gold Label Weyroc should be reached during the latter part of the year following the installation of new chipping plant at the company's Annan, Dumfriesshire, factory during August.

Hardwood Office at Hull

J. Gliksten and Son, Ltd., have decided to open an office for the distribution of hardwoods in the Hull area under the management of R. L. Beevers, and the fully comprehensive range of species already carried at their Stratford, London, main yards will now be available from the recently acquired premises at Hull.

Appointment of Distributors

Chamberlain Industries, Ltd., of Staffa Works, Staffa-road, Leyton, London, E10, announce that they have appointed Hailes Plant Sales and Hire, Ltd., of 81, Great King-street, Edinburgh, 3, and Royal Exchange Buildings, Glasgow, C2, as their Scottish distributors and to handle the sales of both the 'Jenbach' diesel driven air compressor and the 'Staffa' range of mobile and shop cranes.

First Campaign on ITV

Blundell, Spence and Co., Ltd., 37, Queen-square, London, WC1, started their first intensive campaign for 'Pammastic' plastic emulsion paint on Independent Television on June 25. The advertisement was directly linked with their national press advertisements, 'Something's Changing the Face of Britain.'

APPRENTICESHIP AGREEMENTS

Compulsory Registration Proposed

THE local building trade was one of several accused at a meeting of Southampton Youth Employment Committee of backing out of agreements with apprentices. After hearing from executive officer Mr. A. Rose of four youths employed by a firm of electrical contractors that they were not recognised as apprentices, it was agreed to ask the Central Youth Employment Executive for advice on legal action.

'From time to time,' said Mr. Rose, 'a boy is sent by us, or goes himself, to a firm to become an apprentice. Some time later, usually after about two years, he comes back and complains that his employer will not give him his indentures, and he is faced with National Service call-up. We cannot press the employers too hard, or they will sack the boys.'

The committee were told that the practice had occurred in the bakery and engineering industries as well as in building. Employers' associations had promised to help, said Mr Rose, until it was found that the offending firms were not members. Similarly, trade unions had no power to help if the lad was not a member. 'These boys start work in good faith as apprentices,' he said, 'and hear nothing to the effect that they are not apprentices until they are refused their indentures. The only answer is the compulsory registration of apprenticeships.'

HOUSING : FINANCE AND LAND WANTED

'Government Should Reconsider Policy'

MR. L. A. WALDEN, president of the National Federation of Building Trades Employers, speaking at the half-yearly general meeting of the North Western Federation of Building Trades Employers, held at Wilmslow, Cheshire, on July 10, said: Last year as the recently published annual report of the Ministry of Housing shows, private enterprise builders built 119,585 houses for sale in England and Wales—a post-war record. Before 1939, however, private builders contributed well over twice this number annually.

As the local authority housing programme is still falling and is likely to be even smaller next year, it seems clear that, if private builders are to have a reasonable chance to fill the gap, the Government must be ready to reconsider its financial policy for housing, and local authorities must be more ready than they have been hitherto to make the necessary land available for private housing development.

COMPANY NEWS

Acrow Engineers, Ltd., state that the capital of the company is to be increased by the creation of 2,400,000 non-voting 'A' Ordinary Shares. The directors have under consideration an issue in the near future of 200,000 shares of £1 to the ordinary shareholders in the proportion of one new share for every eight previously held. CIC permission has been granted. The issue now under consideration will not rank for the final dividend to be declared in respect of the year ended March 31, 1957, which will be not less than 15 per cent., making a total distribution of 35 per cent. for the year.

Loans to Local Authorities

MoHLG SANCTIONS

THE FOLLOWING are details of loans sanctioned by the Minister of Housing and Local Government to Local Authorities in England and Wales during the quarter ended June 30:

	£	£
Housing (land, dwellings, roads, sewers, etc.) ...	62,159,256	
Advances and Grants under Housing and S.D.A. Acts	15,936,550	
		78,095,806
Town and Country Planning	1,913,657	
		1,913,657
Sewerage and Sewage Disposal	5,598,427	
Water Supplies ...	6,233,771	
		11,832,198
Burial grounds and cemeteries	75,522	
Coast protection ...	63,447	
Crematoria	55,741	
General depots ...	117,569	
General markets ...	19,917	
Land for the benefit, etc., of the district ...	116,408	
Physical training and recreation	44,502	
Private street works ...	396,221	
Privy conversion ...	21,380	
Public baths and washhouses	140,810	
Public conveniences ...	80,203	
Public libraries and museums	105,626	
Public walks and pleasure grounds	75,732	
Refuse collection and disposal	223,500	
Street cleansing... ...	24,051	
Town halls and offices	189,485	
Miscellaneous	363,482	
		2,113,596
		93,955,257

Higher Rates of Interest

THE Ministry of Housing and Local Government have announced that the following rates of interest will apply to all loans advanced to local authorities, as defined in Section 10 of the Local Authorities Loans Act, 1945, from the Local Loans Fund as from July 13, 1957:—

Loans for not more than 5 years, 5¾ per cent.; loans for more than 5 years but not more than 15 years, 6 per cent.; loans for more than 15 years, 5¾ per cent.

KEEN TENDERING IN SOMERSET

Housing Prices Lower

EIGHT tenders for the building of 22 houses and 10 bungalows at High Littleton, Somerset, ranged from £61,366 to £45,500, and at a meeting of Clutton Rural Council MR. H. J. WYATT said that they were the best and most competitive lot of tenders they had had since he had been on the council. 'Furthermore,' said Mr. Wyatt, 'the trend in prices seems to be lower than any we have had before.'

MR. L. G. PRITCHARD said that previous tenders had worked out at an average of £1,700 per house. If there were no extra expenses the latest tender looked like working out at an average cost of less than £1,100 per house.

Subject to Ministry approval, it was unanimously agreed to accept the tender of Messrs. A. Evans, of High Littleton, which was £45,500.

BIRMINGHAM OVERSPILL

Dawley to Build 200 Houses

THE Minister of Housing and Local Government has now agreed to Dawley Urban Council's proposal to provide 200 houses in this East Shropshire town as a pilot scheme for Birmingham overspill.

The Urban Council states that a decision whether the building of houses for overspill will be continued will not be taken until the pilot scheme has been completed and the likely movement of industry is known.

Worcestershire County Council has been warned of the need to consider 'sterilising' land suitable for Birmingham's overspill to prevent its getting into the hands of private builders and so becoming unsuitable for large-scale development of the overspill type.

This is disclosed in the report of the planning committee submitted to the meeting of the Worcestershire County Council on July 15.

HOUSING THE NEWLY MARRIED

Less Opposition to Caravans Urged

THE engineer to Wrexham Rural District Council, MR. T. A. BOWEN, suggested at a recent conference of local authorities that such authorities as were frustrated in their efforts to solve the housing problem for young people could be helped if planning authorities lessened their opposition to residential caravan sites.

He also suggested the conversion of under-occupied council houses into one-bedroomed flats. 'In my opinion,' he said, 'recently married people in my area do not stand a ghost of a chance of getting a house in the next ten or 15 years, and we would like to know if the Welsh Office would give such schemes favourable consideration.'

MR. F. BLAISE GILLIE, Under-Secretary for the Ministry of Housing and Local Government's Welsh Office, said that although most local authorities disliked such sites, they must now consider whether the standards originally applied to them still held good. Caravans were not suitable for families above a certain size, but if such difficulties could be overcome no one could take exception to a caravan as a dwelling.

PERSONAL COLUMN

MR. F. H. FARRER has resigned from active participation in the affairs of The Villiers Engineering Co., Ltd., of Wolverhampton, after 55 years, and the directors have appointed him as the company's first president. With his retirement from the chairmanship have come changes in the Villiers directorate. The new chairman is MR. L. W. FARRER and the deputy chairman MR. H. G. JONES, while MR. T. P. WALMSLEY has been appointed to the board, which is completed by MR. G. TEASDALE.

MR. S. S. DONE, chief chemist of Sissons Brothers & Co., Ltd., has been appointed technical director to the company. MR. A. D. SNOWDEN has been appointed chief chemist to the company in succession to Mr. Done.

MR. H. J. ROBINSON retired from the board of Messrs. W. T. Lamb & Sons, Ltd., of 35, New Bridge-street, EC4, and their subsidiary companies, on June 30, after spending the whole of his business life—47 years—with the company.

Building Trades Operatives

SOUTHPORT CONFERENCE RESOLUTIONS

THE National Federation of Building Trades Operatives held their 40th annual conference at Southport from June 18-21, at which the following resolutions were carried:—

ORGANISATION AND NEW TECHNIQUES.—Having regard to the change of practice in the building industry and the introduction of new techniques and materials and the changed format of building, together with automation and other changes fast developing, this Conference requests the executive committee of the Federation to keep closely in touch with all developments of this kind, and from time to time make such investigations as may be thought desirable with a view to informing the affiliated unions of the developments that take place; and to arrange for the convening of conferences to discuss the structure of the industry, if necessary, to avoid internecine warfare that must arise from demarcation difficulties.

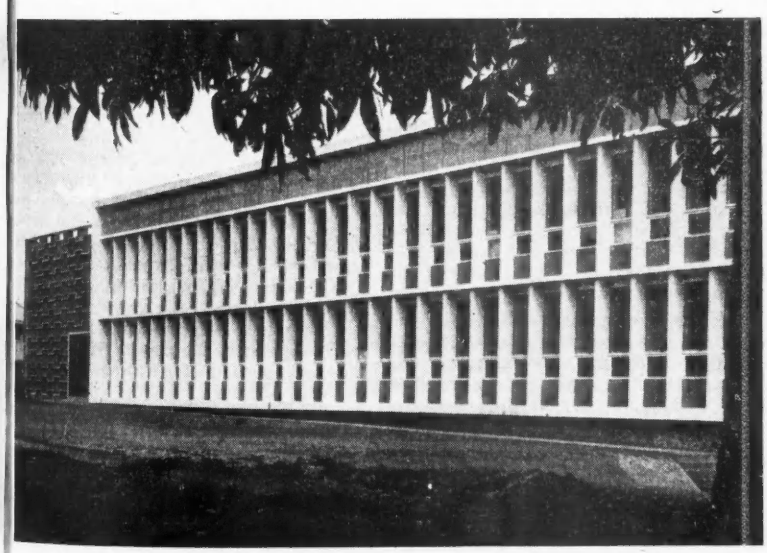
Conscious of the changing techniques in the building industry and the problems arising therefrom, we believe it is now necessary to review existing trade union organisation in order to meet the new and ever changing conditions. We therefore instruct the executive committee to convene a special conference for the purpose of giving consideration to trade union organisation in the light of changing techniques.

APPRENTICESHIP. — This Conference considers that the needs of apprentices remain as urgent as ever and that the scope for their advancement in the organisational, industrial and educational fields is limited because of their absorption within the ranks of the affiliated unions. We therefore believe that the Federation, in addition to accepting full and sole responsibility for the supervision of the industrial conditions of apprentices, should directly control the spheres of organisation and education, and invites the executive committee of the Federation to examine ways and means by which these proposals might be implemented, bearing in mind the financial implications which surround a change of this magnitude.

Inclement Weather

GUARANTEED TIME.—We express our appreciation at the efforts of all concerned in bringing about an improvement in the number of hours provided within Working Rule 2A in respect of time lost through inclement weather; Conference regrets to note, however, that whilst this represents some improvement, it by no means eliminates the practice of many employers up and down the country to discharge operatives under the provisions of Rule 2B at the slightest sign of inclement weather. Accordingly, the Conference requests the executive committee to give earnest consideration to the submission of a constitutional amendment notice which will provide for at least one complete week's guaranteed employment before men are required temporarily to register for unemployment benefit and effect the appropriate amendment to Rule 2B.

Whilst appreciating the recent improvement in guaranteed payment, this Conference calls on the executive to submit at the earliest the claim for a full guaranteed week throughout the year for all operatives in the building and civil engineering industries.



NEW BUILDING, KADUNA, N. NIGERIA.—Designed by Mrs. J. E. Webber, ARIBA, the building illustrated houses the headquarters of the Nigerian Northern Region Development Corporation at Kaduna, capital of the Northern Region. It has been built at a cost of £50,000 *by Costains (West Africa), Ltd.*

AMALGAMATION. — This Conference, being of the opinion that the well-tried motto 'unity is power' was, is and will be for all time not merely a slogan but very much a reality, once again calls attention to the advisability of discussions being opened between the cognate trades in exploration of the possibility of direct amalgamation of the respective forces. We believe that with the good will of the affiliated societies and a lead from the executive committee of the Federation in this direction, considerable progress could be achieved.

HOLIDAYS WITH PAY AGREEMENTS—CONSECUTIVE WEEKS.—Mindful of the problems associated with the insistence of certain employers of having the second week of annual holiday in the winter period, this Conference calls upon the executive committee to refer the matter to the Ministry of Labour with a view to invoking the Industrial Disputes Order.

HEALTH SERVICES AGREEMENT—HOLIDAY PAY.—We call upon the executive committee to give consideration to an alteration in rule that temporary building operatives shall receive holiday payment no less favourable than is applying under the Building and Civil Engineering Holidays-with-Pay Scheme.

ACCIDENTS.—This Conference views with grave concern the various reports of HM Chief Inspector of Factories relating to accidents in the building and civil engineering industries; and urges that prompt steps be taken by all concerned—the Factory Department of the Ministry of Labour and employers and workers in the industries—to secure a remedy. It is our view that many, if not most, accidents that occur are avoidable by the exercise of reasonable care and by the strict observance of the present Regulations made under the Factory Acts.

At the same time, we request the Factory Department to take immediate steps: (1) to bring civil engineering work ('works of engineering construction') within the purview of Regulations; (2) to take stern action against employers (and, if necessary, workers) who act in breach of the Regulations; (3) to strengthen existing Regulations.

Housing Standards Criticised

HOUSING STANDARDS.—This Conference records its profound dissatisfaction with the standards of design and erection of houses for sale by private speculators and the exploitation of people desperately needing shelter. We therefore request the National Executive Committee to approach HM Government with a request that legislation be introduced giving the local authority the necessary powers to: (a) compel the observance of standards of design and accommodation; (b) supervise the construction in all stages to ensure good standards of work; and (c) require the contractors to observe the Fair Wages Clause as set out in the resolution of the House of Commons on October 14, 1946.

CIVIL ENGINEERING.—This Conference expresses concern at the continued encroachment of civil engineering conditions and practices on building trade

work, and instructs the executive to take such steps as necessary to ensure the proper application of the conditions of employment of the building industry to building industry work.

The following motions were referred to the executive committee for consideration:—

APPRENTICESHIP.—Whilst recording its satisfaction with the Award 880 of the Industrial Disputes Tribunal, this Conference views with grave concern the evasions of some employers and the exploitation of youths on craft processes in our industry. We therefore request the National Executive Committee to examine the possibility of legal enactment to ensure the total observance of the national apprenticeship agreement and thereby adequate recruitment and training of future craftsmen.

HOLIDAYS WITH PAY AGREEMENTS: (1) *Full Pay;* (2) *Sickness or Accident.*—This Conference instructs the executive committee to do all in their power to obtain a fortnight's annual holiday with full pay and that the operatives' cards be stamped during absence from work due to sickness or industrial accident. *Full Wage*: We reaffirm support for increasing the value of holiday credits to ensure at least the equivalent of full basic wages for holiday periods.

A Cause of Accidents

BUILDING REGULATIONS: SCAFFOLDING.—We view with deep concern the high ratio of injuries to building workers which are directly attributable to the inefficient erection and/or maintenance of scaffolds and scaffolding on building sites.

As a means of prevention of these so-called accidents, we request the National Executive Committee to examine the possibility of obtaining a Statutory Rule or Order under the Factory Acts, 1937-1948, and the Regulations (Safety, Health and Welfare) made thereunder, whereby all scaffolders would be examined, certified and registered by an Industrial Joint Committee in conjunction with the Factory Inspector, and thereafter only registered scaffolders would be permitted to erect and maintain scaffolds on which other operatives may be required to work.

PUBLIC RELATIONS.—Being aware of the unsatisfactory publicity given to building affairs, especially in regard to wages claims, concludes that much of the bias in favour of the employers' point of view is due to their superior machinery of public relations. Accordingly, Conference would welcome action by the executive committee to establish a modern public relations department as an essential adjunct to the central secretariat.

TRAVELLING EXPENSES (N.W.R.6C).—This Conference views with concern the tendency for employers to circumvent National Working Rule 6, and in particular Rule 6C, by claiming that operatives have been 'set on at the job.' It regards the present wording as ambiguous and capable of interpretation which defeats the original intention. We therefore draw the attention of the executive committee to this position and request a re-examination of the whole question of travelling expenses.

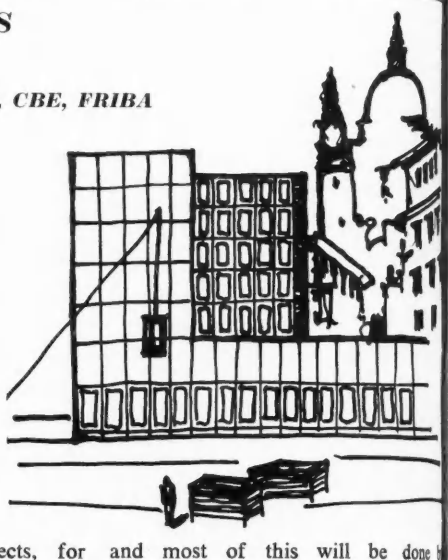
Election of Officers

The following officers were elected for the ensuing year: President, J. H. Mills; vice-president, H. J. O. Weaver; executive committee: the only nominations received were those of the present office holders, and the following were, therefore, re-elected: J. Armstrong, P. Duffy, A. Dunne, J. C. Hill, H. Kel G. H. Lowthian and J. Whittaker; standing orders committee: The follow were elected by Conference: G. I. Bi ham (ASW), D. Fraser (PTU), W. P (Scottish Painters' Society). The o three members will be duly appointed the executive committee.

EVERYDAY THINGS

VII.—The New Race

By ARTHUR W. KENYON, CBE, FRIBA



'WHEN I was a boy. . .'; 'Oh, yes, we have heard it all before'; 'What is going to happen when the old ones die off?'; 'He's a good old brickie'; 'He's a fine old carpenter'; 'They don't teach 'em like that now. . . .' and so on.

We have suddenly, and very suddenly indeed, produced a new race, and the training or education has not changed with it. We have people now who do not want to learn a trade as we think of it; who do not want to be craftsmen as we have known them in the past. We have got young architects, for instance, who do not want to be worried with detail, who have already discarded the classics—and, indeed, draughtsmanship as well. It is not so much a fault as a fact, and we are still applying methods of teaching and training to workmen and architects which are distasteful to the new type of mind. It is rather like pushing Greek and Latin into a young schoolboy who speaks only Esperanto. He doesn't see the need for it, and, after all, architecture is now a type of Esperanto—a universal language.

Materials Have Changed

Our building materials have changed with the scientific age, and I can imagine buildings without any of the old materials, such as brick and stone, wood, plaster, paint, etc. I think the tendency will be to have many more pre-assembled parts made in the shop and hoisted into position on the site. What will be the training for this form of building?

There will be the back-room boys who think out the properties of the material and their suitability for wear-and-tear and weather; there will be the machine hands who operate the various processes in the shops, and the assemblers on the site who fit the pieces together. The architect will have far less construction to learn and he will be left free to design; the design will take the form of planning for a special purpose and assembling units to enclose the plan. The working drawings may well become diagrammatic working models. The craftsman will learn his craft in the back room, at the bench or on the assembly line, and the only work left on the site will be ground work, and most of this will be done by machinery.

A new architecture may emerge from new scientific age and training. I wonder

(To be continued)

Narrower Streets Proposal

FEARS OF CONGESTION

WORTLEY Rural Council, near Sh field, discussed a minute of t Planning Committee to amend a local b law so that a new housing estate off Cowl Lane, Chapeltown, could be built wi narrower streets than Ministry of Housi regulations allow for, at their meeting o June 14.

COUNCILLOR ERNEST COPLEY said th because Council members were ignorant the way plans were drawn up they w often 'taken for a ride.' He said he w disturbed lest the amendment enablin narrower streets to be built should caus congestion. 'By relaxing in this direction we are tending to get a greater conglomera tion of houses—which is quite different fro what appears in the plans.' He added th this was not the fault of the contractors, b possibly because councillors as laymen were ignorant of plans. He went on to say th the recently completed development i Ecclesfield Lane, Grenoside, was congeste to a 'disgusting' extent.

COUNCILLOR MRS. E. RADCLIFFE als spoke of overcrowding in the district. M A. M. KELLY, Clerk to the Council, stat that the Ecclesfield Lane property was bu to the old wide-street regulation, and th had caused the congestion. The Counc approved the minute of the Planning Com mittee without amendment.

LIGHT CLADDING—GENERAL PRINCIPLES OF DESIGN

Building Research Station Digest No. 98

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THIS and the next Digest deal with the light claddings that have been intensively developed during the last few years as walls for buildings. These claddings can be used to form continuous envelopes or 'curtain walls' suspended from the load-bearing structure or as panel infillings in the spaces between the external members of a structural frame. Each form has the characteristic purposes of saving weight, space and building time, of extending the range of architectural expression and of exploiting new sheet and panel materials available for dry construction.

Some kinds of curtain walls such as factory cladding and patent glazing were in use long before they were distinguished by that name, and between them they provide the background to their more recent counterparts. But many other types of cladding lack recognisable ties with established building practice and, as some of the aspects of their behaviour are as unfamiliar as the materials and constructions used, there is at present no sound basis of experience on which to judge their performance accurately.

Functional Problems

In this Digest the main functional problems involved are examined in the light of existing knowledge. In the next Digest the behaviour of the more commonly used materials will be discussed. The two Digests must be regarded as interim contributions, subject to modification as experience is gained. They relate primarily to conditions in Great Britain and Northern Ireland. Additional information and experience from practice will be welcomed at this Station.

Much of the following comment and many of the numerical values relating to building materials assume extremes in exposure. It is of course expected that the reader will interpret these according to less severe exposures or to climates other than that of the British Isles, for which the notes are principally intended. Broadly, the problems of stability, weather exclusion and dimensional change increase in complexity and importance with the height of buildings but, here again, the relative weight to be attached to each functional requirement must be judged according to specific building designs.

In contrast to a load-bearing wall, a light cladding supports only its own weight and does not require high compressive strength but it must still be designed to resist wind loads. The possible variations in size, shape and composition of the components of any wall cladding are controlled by the need for self support and by wind loads that become more severe as height above the ground increases and as the degree of exposure increases.

The subject of wind loading is dealt with in BS 449, 'The Use of Structural Steel in Building' and in a slightly different way in the BS Code of Practice CP 3, Chapter V, 'loading' for buildings in general. The arguments so far as they affect cladding are summarised below and the basic wind pressures shown in Table 1 are quoted from the Code of Practice.

TABLE 1

Effective height of building (ft.)	Basic wind pressure p (lb./sq. ft.)			
	Exposure A (V = 45 m.p.h.)	Exposure B (V = 54 m.p.h.)	Exposure C (V = 65 m.p.h.)	Exposure D (V = 72 m.p.h.)
Up to 10	4	6	8	10
40	6	9	12	16
80	9	12	17	22
120	10	14	19	25
160	11	16	22	28
200 or more	12	17	24	31

Local authorities decide upon the exposure rating A, B, C or D of their own areas. In Britain the northern uplands and the coastal areas are the most exposed and thus present the most exacting conditions for standardised building systems developed for country-wide application. Conditions in other parts of the world will sometimes be even more severe. The wind pressures shown in Table 1 are the basis on which wind loads are calculated in general for a structural frame and for exposed walls. In applying the values in Table 1 to the walls of a building, the windward and leeward faces of the building (perpendicular to the direction of the wind) are assumed to share the tabulated wind pressure (p) in the proportions of about $+\frac{1}{2}p$ externally on the windward face and $-\frac{1}{2}p$ externally on the leeward face.

Internal Pressures

To take account of internal pressure or suction produced when wind has access to the interior of the building through permeable walls or through openable windows on one or more façades, the Standard and the Code recommend that internal pressure and suction should be considered in proportion to the window area. In office buildings, flats, etc., with windows of customary size and spacing the walls should be designed to resist outward or inward pressures of $0.7p$ and, when as in some single-storey factories, very large openings occur in the walls the outward or inward pressure may be up to $1.0p$. (These recommendations are excepted in the case of a squat building with a roof pitched at less than 30 deg. and a width greater than twice its height. Here, the assumed pressure, inwards or outwards, should be taken as $0.8p$ regardless of windows.)

Panel cladding and sheeting may be subjected locally to higher wind pressures. It is recommended in the Standard, and implicit in the Code, that beyond the foregoing values an allowance of $0.1p$ should be made to include this factor. The modified assumed wind pressure is thus $0.8p$ for buildings with normal openings, with values up to $1.1p$ for very large openings.

Panel components should be stiff enough to restrict flexure within limits that avoid the risk of cracking internal finishes or repeatedly disturbing mastic materials used for jointing. Thin metal facings should be secured or shaped so as to reduce vibration in a gusty wind and accommodate the sudden deformations due to thermal movement which are described later. Other incidental forces produced by changes in temperature should be taken into account in detailing frames and couplings for cladding panels and the connections between these and the building structure.

Fixings for Panels

Fixings for panel or sheet components should be designed to carry wind pressures and suctions given above on the area of cladding which they each support except that a suction of $1.5p$ should be assumed for each such area within a distance from each end of 15 per cent of the length of a building face. They should be strong enough to withstand possible over-load due to the failure of an adjacent fixing and thus to prevent collapse of the cladding as a result of progressive failure of a number of fixings. In designing fixings a relatively high safety margin is therefore desirable.

(*a*) Rain. Much of the rain falling on a porous wall material such as brickwork or stone is absorbed, held in pores and later evaporates into the surrounding air. On the other hand all the rain falling on an impervious vertical surface will run down the wall in a heavy rainstorm at the rate of something like 1 gal. a minute for each 100 sq. ft. of wall exposed to rain. This flow will of course accumulate as it approaches the ground and could cause embarrassment at the base of a high building. There have not yet been any indications from practice that intermediate catchments between the roof and the ground are desirable but a reasonable minimum provision is to direct water run-off away from doorways and paths.

The more serious effects of this volume of run-off are exceptional risks of water penetration at open or gasketted joints and of erosion by scouring where joints are filled with mastic compounds. Both are known to be occurring in existing buildings.

(*b*) Wind. The risk of water penetration at joints is increased by strong winds. It has already been found that in claddings in very exposed situations the customary forms of drips, weepholes and ventilating channels can freely admit water which may be driven up the wall face as well as down.

In a survey recently conducted in America, one fifth of 160 owners of buildings with metal curtain walls reported noticeable air penetration at the junction of the window frame and surrounding cladding ; a quarter reported dust infiltration also. Such air movement, outward or inward according to the wind direction, will increase the heat loss from a building

and therefore impose an added load on the heating plant. Another disconcerting effect of strong winds is the sudden, strident 'aeolean harp' effect produced by air forcing its way through narrow apertures and across the unsupported edges of thin metal sheets. This can be prevented if intercommunicating cavities through the thickness of the wall are avoided.

Rain Penetration

Designing for resistance to rain penetration. In all systems subject to excessive water run-off there is much advantage in designs of joints that provide an air space drained to the outside immediately behind impervious facings. This provision is a feature of the so-called 'patent' glazing design, commonly used in Britain.

Glazing into metal frames is usually done in this country by puttying or by mastic-bedding and beading. The recent development of neoprene and butyl-based rubber extends the available fixing methods to the use of gaskets such as those used in the motor car industry, to strip bedding compressed round the edges of glass sheets by beading, and to hollow tube stripping used each side of the glass and similarly compressed.

Systems using panels bedded in rebated rectangular frames remain waterproof only as long as the bedding mastic remains adherent and in good condition. As the ideal requirements of permanence and stability for exposed mastics appear to be beyond practical achievement at present, sealed joints must be considered to have inherent weaknesses and to be less permanently valuable than adequate drainage behind the outer facing.

Various modifications of framed panel systems include panels fixed with compressible sealing strips and soft mastics to provide the final seal. Rubbery sealing strips may also be formed by compounding two-part ingredients to bond securely to the surfaces which they separate ; this method, which is described in Part II, seems likely to have advantages over gunned or other strip-sealing mastics but more experience is needed before this can be confirmed.

In very severe exposures, panel walls that rely on cavity drainage at their lower edges may need drainage channels or gutters with a step or a benching at least two inches high if the risk of penetration of wind-driven rain into the backing is to be avoided.

Thermal movements. These movements can be particularly troublesome in curtain walling systems in which large panels are fitted into rebates in rectangular frames. The panels and frames are usually of dissimilar materials, and the differential movement complicates the problem of waterproofing, since it may be more than any putty or mastic bedding can continue to accommodate for long periods. The trouble is accentuated by the fact that lightweight panels and their supporting frames have relatively small heat capacities and in consequence their temperature will vary more rapidly and over a wider range than the more substantial parts of a building. The external panels, in particular, which may be assumed to be separated from the building by a layer of thermal insulation, may closely follow the changes of air temperature. Between night and day in clear summer weather in this country the variation can be up to 40 deg. F. while the total range, between a cold winter night and a hot summer day, may be as great as 90 deg. F.

Panels exposed to sunshine may, unless very light in colour, experience an even greater range of temperature. On a black panel, insulated at the back, temperatures can, for example, rise as high as 160 deg. F., even in Britain.

For composite panel construction exposed directly to the sun then, it may be necessary to assume an extreme seasonal range of temperature of 160 deg. F. as a basis for design in Britain. The dimensional changes in unrestrained components over this range are shown in convenient units in Table 2.

TABLE 2: THERMAL MOVEMENT
(change in inches on a 10-ft. length for 160 deg. F. temperature change)

Steel	0.12
Aluminium and Alloys	0.26
Glass	0.12
Asbestos cement	0.09
Wood: along grain	0.03—0.09
across grain	0.37—0.71
Plastics	0.08—0.40
Concrete	0.12

Where prefabricated composite panels are used, with the component layers firmly connected together, temperature gradients across the thickness of the panels and the use of dissimilar materials in juxtaposition may cause deformations which still further complicate the fixing problem. There is much to be said for keeping the exterior waterproof skin separate from the inner insulating layer. Ventilation of the air space may then be useful in sunny weather, as a means of keeping down the temperature of the exterior skin, and the existence of the cavity also simplifies the problem of water exclusion and condensation. Even when ventilated the air space provides a useful increment of thermal insulation but the degree of ventilation possible will be limited by other considerations.

Panels and Frames

Clearly in regard to thermal movements between panels and frames, the advantage lies with those systems of curtain walling which do not depend on putty or mastic fixing and in which sufficient freedom of movement can be left at the edges of the panels to accommodate any thermal movements likely to be experienced.

There is, however, another aspect of the problem of thermal movements that can arise with all systems of curtain walling. Although the frame to which the cladding sheets are attached will not in general vary in temperature as widely as the sheets, it may vary much more than the structure that carries it. Apart from the effect of differences in heat capacity, the frame will be much more exposed to external influences than will the structure of the building. The latter, too, will probably be kept warm throughout the winter by the internal heating, and may even be stabilised in temperature throughout the year where air conditioning is in operation. If, therefore, the frame is continuous over a number of storeys the total movement relative to the structure may be considerable.

Of the various materials commonly used for the frames, aluminium is likely to give most trouble in this respect, because of the magnitude of its thermal movement. Obviously, allowance for such movement must be made in fixing the frame to the structure : this is often done by slotting the holes for the attaching bolts, though more consideration should perhaps be given to means of reducing friction at the bolted connections. Failing some such provision the frame must be designed in units small enough for the relative movement not to be troublesome.

Moisture movement. With the exception of metal and glass, the materials used for light claddings all have recurrent movements in response to changes in moisture content. Movements in materials such as dense plastics are of little practical account compared with their thermal movement but products based on wood and on cement have relatively high moisture movements. The relative significance of moisture movement and thermal movements in different materials will be discussed in Part II.

A high standard of heat insulation for external walls is desirable in this country principally to limit heat losses from buildings in winter and so to avoid high fuel consumption. Broadly, heat conservation in cool climates and the control of heat gain in warm ones are basic economic problems but in any habitable building the value of heat insulation must be considered also in terms of occupants' comfort. Both aspects of insulation are further related to the incidental effects of heat and moisture on the efficiency of insulated walls and the durability of their components and finishes.

Heat losses and gains. Many insulating materials and many kinds of composite wall panels are themselves highly efficient as heat insulators but the overall resistance to heat transfer through a wall of which they form part depends also on the method of framing employed. Some of the benefit of insulation afforded by panels themselves will be sacrificed if continuous framing members which conduct heat rapidly are exposed on the inside and outside surfaces of the wall. The heat loss from warmed buildings across such 'bridges' will be more rapid if the external skin of the wall is of metal in contact with the frames. Local leakage of this kind can be reduced by framing with a material that conducts heat slowly or, if the frames must be of metal, by breaking the conducting path across the wall in any of the ways sketched in *Fig.* 1.

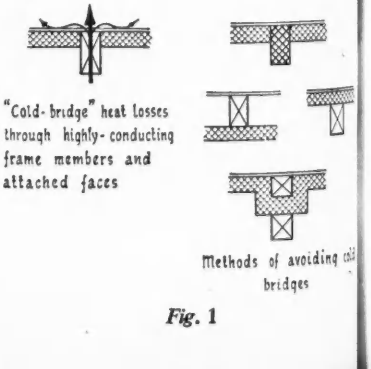


Fig. 1

These methods are now establishing themselves as essential techniques in some advanced construction here and abroad.

Heat gains from solar radiation at the beginning and towards the end of the winter can make welcome addition to comfort when large windows are used but summer gains, even in temperate climates, may be undesirable. It is not common practice in this country to use external shading by louvres or blinds, though in some kinds of building advantage can be taken of shade from balconies. However, the problem of solar gain through openable windows is not generally so serious here that it cannot be dealt with by ventilation and help can be given by light-coloured blinds behind the glass of windows not meant to be opened. These will protect occupants from radiant heat and, if they are white, they can reflect a large proportion of solar heat back through the glass.

Excessive Heat

Incidental effects of solar heat. In the absence of shade from external projections, the insulated parts of a well-insulated wall may become excessively hot, to the detriment of paints and mastics. As already noted, ventilation behind the outer skin of cladding will be of assistance in this respect. The provision of a drained cavity behind the external skin is likely to have a more direct bearing on the condensation problem discussed below, but it can help to relieve high internal temperatures especially in the types of cladding based on patent glazing where there is fairly free ventilation through joints in the cladding.

Control of condensation. The risks of condensation within a panel wall of which the outside skin is either impervious or the least permeable component of the panel, involve factors specific to individual forms of construction which cannot be dealt with here. In the light of present experience it appears that in normally heated buildings, where internal humidity is not high in winter, condensation trouble is least likely if a drained cavity can be arranged behind the outer skin. Although it may not be possible to ventilate this cavity thoroughly, the outlets for water will assist the transfer of vapour from the cavity to the outside air. When a cavity cannot be used or where high internal humidity is expected, the alternative of introducing a vapour barrier at—or more usually behind—the internal wall face should be considered.

There are obvious difficulties in maintaining the continuity of a vapour barrier over jointed backgrounds. As long as the internal barrier is the most effective seal in the wall construction, and there is some freedom for vapour to escape at joints in the external face, the small quantity passing through joints in the inner lining should be able to diffuse outward harmlessly, and drainage may be required only around highly conducting panel or structural frames.

If vapour barriers are not included condensation can readily occur on the inner surface of the outer skin of a drained cavity. The amount of condensation can be reduced if the outer skin consists of two impervious sheet materials separated by a properly sealed cavity. This method has the further advantage that the innermost surface will then be exposed to much less severe conditions than the inner surface of the single sheet, and it also provides a means of protecting paint coatings used for decorative purposes behind glass sheeting.

Persistent condensation will ultimately damage stove-enamelled or brush-painted coatings on glass or metal external panels, or on any permeable insulation behind them. There is least risk of deterioration of this kind where the outer skin consists of two impervious sheet materials, separated by a sealed air space in which the paint coating is exposed to virtually dry conditions. Absolute protection for such a coating depends on the permanence of the edge seal of the unit, and experience to date suggests that reasonable durability can be achieved.

As lightness in weight and high resistance to airborne sound transmission are not compatible, the opportunity to control external noise by wall insulation diminishes as the weight of the wall is reduced, and thus control by the siting of buildings or individual rooms becomes proportionally more significant. When buildings cannot be sited away from industrial or traffic noise, the requirements of good sound insulation tend to exclude forms of construction which in other respects may be desirable. For example, light panel wall systems which attempt dry fixing without air-tight joints may meet other functional requirements admirably, yet provide very low resistance to external noise. Weight and continuity are indispensable if much above the tolerable minimum of 20-30 dB of sound reduction is to be sought.

Resistance to Noise

The type and relative area of glazing are each important to the overall resistance to external noise. Very large areas of single glazing may transmit so readily that the benefit of insulation in the unglazed areas is offset. Progressive improvements in insulation can be expected by limiting the relative area of glazing, by using fixed lights in conjunction with air conditioning, and by combining either or both of these expedients with double glazing. Double-glazed windows should have a cavity 4 to 8 in. wide between panes and with reveals lined with absorbent material. Table 3 gives the estimated values of sound reduction for various types of construction and proportions of glazing.

TABLE 3: VARIATION OF SOUND REDUCTION WITH AREAS AND TYPES OF CONSTRUCTION.

Type of Glazing	Construction of wall spandrel	Decibels (dB) reduction of walls with windows				
		Per cent glazing				
		100	75	50	25	0
Single with opening lights	a	15	16	18	20-21	30-35
	b	15	16	18	21	40
	c	15	16	18	21	45
	d	15	16	18	21	50
Single with fixed lights	a	22	23	25	27	30-35
	b	22	23	25	27	40
	c	22	23	25	27	45
	d	22	23	25	28	50
Double with 4–8 in. cavity	a	44	40	38	36	35
	b	44	43	43	41	40
	c	44	44	44	44	45
	d	44	45	46	48	50

It is not yet possible to compare the effects of light cladding and masonry on structural noise transmission between adjacent rooms or storeys, but it seems unlikely that there will be appreciable differences in behaviour. Airborne sound transmission is, however, a considerable factor, especially in curtain wall construction if the method of attaching the cladding to the structure does not provide air-tight seals between adjacent rooms or storeys. Air gaps between the edges of cross partitions and cladding, even if they are no more than a few hundredths of an inch wide, can reduce the effectiveness of the partition insulation, the reduction being proportionally more severe as the nominal insulation of the partition increases.

(*a*) Single 'sandwich' panel: weight 5-10 lb. sq. ft. giving 30-35 dB reduction.

(*b*) Panels with cavity between faces: weight 10-15 lb./sq. ft. giving 40 dB reduction.

(*c*) Panels cavity/back-up wall: weight 30-50 lb./sq. ft. giving 45 dB reduction.

(*d*) 9 in. brickwork or equivalent: weight 120 lb./sq. ft. giving 50 dB reduction.

With the exception of schools, buildings in Britain must be designed so that the external walls can resist fire for periods specified in English, Scottish or London byelaws. For dwellings the duration varies according to the height and size of the building and to its position in relation to other buildings. For other types of building, more than one storey in height, the normal requirement for curtain walls is a fire resistance of two hours; for panel walls supported between structural building members, one hour.

A curtain wall in which panels are fixed in a metal frame is unlikely to meet the appropriate requirements by itself, for the metal parts are liable to fail before the specified time has elapsed, even though the panel infilling may have adequate fire resistance. The usual solution in this case is to install a non-combustible 'back-up' wall, independently supported from the cladding and high enough to combine with a structural floor to provide the separation that will reduce the risk of fire from spreading to the storey above (see *Fig.* 2 and Model Byelaws 47(2)(a)).

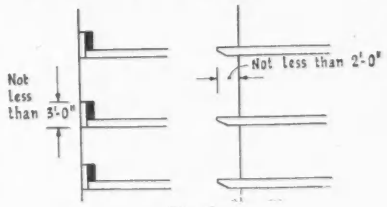


Fig. 2

An alternative is to project the floors to form fins or ledges or balconies with a similar object; this may be convenient especially in the design of flats. Back-up walls or special projections add to cost but, with metal-framed curtain walls at least, they must be accepted unless the frame and the cladding meet the requirements for fire resistance, or until such time as statutory requirements of fire resistance are relaxed. Other countries may have

different standards but the British requirements are not unusual.

Many combinations of materials for panel infillings will be found to meet the requirement of one-hour fire resistance. Some of the proprietary forms of composite panel already have reports of test for their fire resistance.

Mention has been made in some of the preceding sections about the advantages and disadvantages of incorporating cavities in light forms of wall construction. In any design the relative merits of cavities must be balanced. For convenience, therefore, they are summarised below.

Requirement	Advantage or disadvantage of cavity
Resistance to wind penetration	Fundamentally no disadvantage but detailed treatment must ensure that, where there are two or more cavities within the thickness of the wall, they shall be isolated from each other
Resistance to rain penetration	Clear advantage in drained cavity behind the external skin. Precaution against upward-driven rain should be taken
Insulation against heat loss	Generally advantageous. Incidental ventilation has no serious effect
Control of solar heat gain	Some advantage afforded by incidental ventilation in drained cavity
Control of condensation	Drained cavity advantageous in removing condensate. Incidental ventilation again valuable. Double skin construction with properly sealed cavity effective
Insulation against noise	Wide cavities with absorbent reveals advantageous

Tenth Anniversary Symposium

RILEM MEET AT STOCKHOLM

ON THE tenth anniversary of the establishment of the international organisation for collaboration between testing laboratories —RILEM—a three day symposium was held in Stockholm—June 27-29—on the subject of bond and cracking in reinforced concrete structures. Some 160 engineers from 25 countries took part with a representative group from Great Britain. Unfortunately the timing of the symposium prevented the attendance of most of the academic research workers from Britain.

Much of the discussion related to specialised investigations of the fundamental nature of bond and theoretical predictions of crack width and spacing under various conditions. Comparisons between various reinforcing steels were reported and in the case of continental and American contributions these related almost exclusively to deformed high tensile steel.

In connection with corrosion of reinforcement it was generally accepted that loading cracks rarely caused trouble and widths of up to 1/100 inch are acceptable. The greater sources of trouble are undoubtedly cracks caused by restraint to shrinkage and temperature movement. Probably the most significant conclusion was that corrosion problems in reinforced concrete are almost exclusively due to poor quality concrete and not to loading cracks.

A subject in which further knowledge is required is crack distribution and widths due to shear.

Flat Slab Construction

A development in reinforced concrete engineering

THE incorporation of the Pierhead prestressed floor into a building frame with no projecting beams was suggested by C. J. Pell and Partners, consulting engineers of Manchester-square, W., who are using this system in a 10-storey office block, Regina House, in Edgware-road. The first step in the development was to test the connection between the prestressed joists and the *in-situ* flat beams. This was done on a full-scale trial to C. J. Pell's design at Feltham last year. The results were completely satisfactory and the engineers then proceeded to the design of a complete section of a building for testing including floor slab, beams and columns.

The name 'flat slab,' in engineering practice, implies no floor beams. In this system the beams are all of the same depth as the floor, either 10 in. or 12 in.

The system gives freedom to plan each floor with partitions anywhere, uninterrupted light in the building at ceiling levels and a reduced building height. The omission of projecting beams on the ceiling means that one storey can be gained in ten. The system allows considerable flexibility in column spacing and another advantage is the saving on frame and foundations which results from the lightness of the floor. Thus for a 130 lb. per sq. ft. load on a 20 ft. span the Pierhead slab weight would be 45 lb. per sq. ft., a hollow pot slab 75 and a solid concrete slab 108. The system includes among its other advantages a considerable degree of precasting and, with all the soffites at one level, shuttering is simplified and so is the plastering and painting work.

Structural Details

Factor of safety:—Prestressed units:—As required by draft code. Structural frame:—Not less than 2.

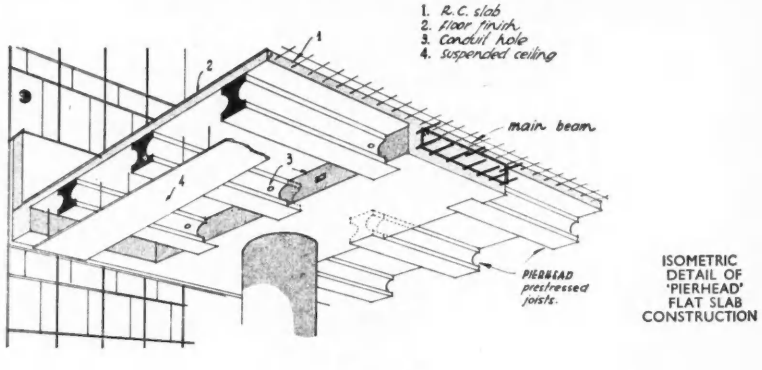
Fire resistance:—With normal plaster finishes:—1 hour. With special plaster finishes:—Up to 4 hours.

Weight:—Slab only: 10 in. Composite:—40-60 lb./sq. ft., 12 in. Composite:—45-75 lb./sq. ft. Slab and beams: 10 in. thickness:—Average 60 lb./sq. ft., 12 in. thickness:—Average 70 lb./sq. ft.

Span range:—10 in. thickness:—Column centres, 15 ft. to 25 ft. 12 in. thickness:—Column centres, 20 ft. to 30 ft.

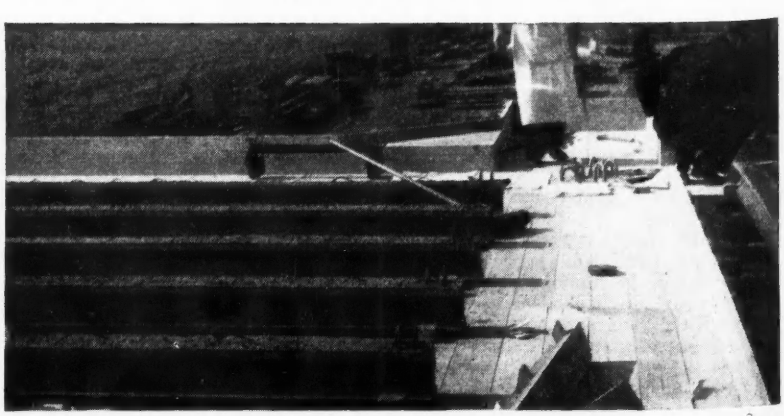
Sound resistance:—Airborne:—Grade I anticipated with normal finishes. Impact:—Grade I or II depending on finishes.

Produced by Pierhead Engineering Division (the Unit Construction Co., Ltd.), of Faggs-road, Feltham, Middlesex.



ISOMETRIC DETAIL OF 'PIERHEAD' FLAT SLAB CONSTRUCTION

Before pouring, showing the simplified flat beam shuttering; reinforcement from the head of the column appears (right, back) in the centre of the flat beam



NATIONAL FEDERATION OF HOUSING SOCIETIES

Annual General Meeting

THE National Federation of Housing Societies held their 20th annual general meeting at Westminster City Hall, WC2, on May 29. President of the Federation, Viscount Gage, KCVO, was in the chair.

In a report of the work of the Federation over the past year it was stated that in spite of financial handicaps in building development suffered by housing societies in common with local authorities and other bodies, the work recorded followed closely the outline given by the Council in the report for 1955. It was anticipated that the emphasis would probably be on flatlet schemes for the more able-bodied schemes qualifying for improvement grants under the Housing Act, 1949. New homes providing care and attention for the more infirm had also been opened during the year.

Although the boom in self-build societies was undoubtedly over, and many such schemes are now actually completed, quite a few new self-build schemes of the owner-occupier type had been started.

The development of housing schemes for industrial employees, for general family needs, had been temporarily slowed down owing to the combined factors of the abolition of the subsidy for ordinary purposes and the prevailing high interest rates—but, in spite of this, reports from industrial societies gave indication of some progress. The same factors had proved a deterrent to the development envisaged in the co-operative type of housing scheme for which, in the view of the Council, there was a considerable field.

Housing societies for coloured workers, of which the Aggrey Society in Leeds was the pioneer in 1955, were followed by similar societies in Birmingham, Bath and Nottingham. This had been a most interesting feature of the year's work. These societies had a friendly reception in their different localities and had been developed in the true social service tradition.

Slum Clearance

The report goes on to state that so far co-operation with local authorities in slum clearance, urged upon member societies by the Council, had only made a modest start, but, as the local authorities' own schemes gained momentum, doubtless housing societies would bear their part, as in the previous slum clearance campaign of the 1930s.

The Council of the Federation, the constitution of which was amended by special resolution in June, 1955, now consisted of 18 elected and three co-opted members in place of the former 15 elected and six co-opted members. Mr. Conyers Bridgewater resigned from the chairmanship in 1956 after five years of distinguished and devoted leadership, which received official recognition by the award of OBE in the 1957 New Year's Honours List. He was succeeded by Sir Parker Morris, LL.B, who since his retirement in September from the office of Town Clerk of Westminster, which he held for 28 years, had already played an active part in guiding the affairs of the Federation.

The Council had sent strong deputations to the Ministry of Housing and Local Government with valuable results. In particular, three important concessions were obtained in 1956 and reported in the Bulletin: (i) freedom of sale of houses without refund of subsidy to sitting tenants in self-build societies; (ii) the inclusion of estimated liability for Schedule A tax in rental calculations, ten years in advance of its actual incidence; (iii) and the possible deferment for as long as 10 years of the taking up of permanent loans sanctioned at the present period of high interest rates. All these three matters were of considerable moment to member societies, many of which had been pressing the Federation to find a solution of them.

The Federation had frequent and profitable contacts with the Welfare Department of the Ministry of Health at whose request a small pilot survey on costs of old people's homes run by housing societies was carried out during the year. Evidence was also taken from the Federation by the Ministry of Housing and Local Government in connection with the survey of old people's housing conducted in 1956.

During the year the Council, through the Executive Committee, was entrusted with making recommendations for the distribution to old people's housing societies of a sum of £500 by the Unilever Charitable Appeals Committee. This sum was allocated to 14 societies throughout the country.

RECONSTRUCTION OF BUILDINGS

War Damage Claim Case

By a Legal Correspondent

AN interesting point was recently decided by the Court of Appeal in the case reported as In re 34, Brutonstreet, which was decided on June 3. The building in question formed part of a terrace and was flanked by buildings on each side about 200 years old. The front wall had been so badly damaged by enemy action that it had to be wholly demolished and rebuilt. The two flanked walls were not in satisfactory condition and had been the subject of a dangerous structure notice in 1948, served by the LCC.

The question was whether the war damage claim should extend to include the cost of dealing with the flank walls as well as the front wall which would increase the claim from £3,600 to £7,800. The £3,600 allowed by the Commission was the cost of reinstating the front wall on the basis that it could have been suitably bonded back to both party walls on an average depth of 18 inches.

Mr. Justice Vaisey had taken into account the views of the District Surveyor of the City of Westminster at that time and considered that although the War Damage Commission had said 'it would have been physically possible to rebuild the front wall... without rebuilding the flank walls to the extent to which they have been built,' although physically possible it was not practicable and therefore he allowed the appeal.

The Court of Appeal, in reversing his decision, felt bound by the finding of the commission on a question of fact and in relation to the flank walls the commission had said: 'If the work had been carried out in this way the physical condition of the property would certainly have been no worse than it was before the war damage occurred.'

An Interesting Point

As a separate and interesting point in relation to the reconstruction of buildings, readers may remember that in August, 1954, the Ministry of Transport and Civil Aviation issued a Circular 696 to local authorities which stated: 'It is no longer necessary for councils to safeguard future road improvement schemes by using powers under S.5 of the Roads Improvement Act, 1925, or section 33 of the Public Health Act, 1925, to prescribe building or improvement lines.'

These matters were to be covered by the terms of planning consents. Now the point arises whether any work on a building is a rebuilding or merely alteration, maintenance or improvement, in which case, unless there is a material alteration of the appearance of a building, no planning permission is required under S.12 of the Town and Country Planning Act, 1947.

It must be appreciated that in a shopping centre it is necessary for the local authority to control building in relation to building and improvement lines but if the developer proposes to retain the front wall the external appearance may not be materially affected and there is some argument that as a part of the building remains there is not a rebuilding as such but merely an improvement of the structure. There does not appear very much case law on the subject and that is confusing and leaves the issue as a matter of degree. For instance, in an 18th century case, *City of London v. Nash*, where the pulling down of both back and front walls was involved it was held that to rebuild was to rebuild the whole and not a part.

It has been said in Parliament (House of Commons Hansard Vol. 483, Col. 43, 23.1.1951) that if a little of the original building was retained and no material alteration made from the former design that would be maintenance for which planning permission would not be required. On the other hand in the case of Re Walkers Settled Estates, 1894, it was said: 'Supposing most of a house was pulled down and a small part left and the rest of the house was rebuilt it could not be said that there was not a rebuilding.' This appears to leave considerable uncertainty as to how far rebuilding is permitted when use is made of the original structure. Undoubtedly if it is permitted development it will be advantageous to the developer in cases where it would otherwise have been refused and it may be worth while to test the courts on such a point.

Birmingham Industrial Safety Group

EMPLOYERS AND THEIR LIABILITIES

SPEAKING to members of the Birmingham Industrial Safety Group, Building Contractors' Section, at a meeting held in Birmingham recently, MR. R. HILLIER, HM Superintending Inspector of Factories for the South Midland Division, gave details of the extent of Common Law as it affects employment in the building and civil engineering industries.

Mr. Hillier said: I want to discuss with you this afternoon the extent of this Common Law as it affects employment in industry. If any person, whether it be in industry or otherwise, employs another, he owes certain duties to that other person. These duties, emanating from Common Law, are that he must provide proper plant, employ proper personnel, and integrate the two into a proper system of work. Now if a duty is owed by one person to another and that duty is not carried out, should the person be injured or otherwise hurt, and should the injury arise because of the failure in that duty, then the person has a right of action in the Courts for damages. This is based on the Law of Tort and usually it arises because of the negligence of some person.

In 1837 this principle was further extended to include a vicarious liability. By that is meant a liability through someone else. If you are injured, not through my negligence, but through the negligence of somebody I employ, then I am still liable to you. Now Parliament has, of latter years, imposed many duties by Statute, affecting the employment of other people; thus the Factories Act imposes many duties upon an employer to safeguard the person of his employee. If a person is injured as a result of the failure to carry out this statutorily imposed duty, then a Right of Action also arises.

Growth of Civil Actions

You will all have seen of latter years a big growth of civil actions between employees and employers. These occasions usually arise following an injury to an employee. Simply because a person has been injured does not mean that he can automatically obtain damages, but if he can satisfy a court that his injury was due to a duty owned to him by his employer not being carried out, then he has a good cause of action. This action will be based on the tort of negligence, and to support the negligence he will set out to say either that a statutory duty has been broken, e.g., the requirements of the Factories Act had not been carried out, or that a Common Law duty has not been met.

I am anxious that you should understand this difference between Civil Law and Common Law. One often hears the phrase that 'the man took action at Common Law.' That is just nonsense. A man can only take action in Civil Law. To support that claim for action he may use either the Common Law or Statutory Law, but the action itself is not Common Law.

I am here to discuss with you the Industrial Law as it affects safety, and in particular, in the building industry. First, you will want to know what obligations you do owe to the person you employ. You owe, of course, the Common Law duties I have outlined, but you also owe many statutory duties. These duties largely emanate from the Factories Acts. It is, perhaps, a little surprising to be told that when you are engaged on the erection of a building you are a factory, but nevertheless, that is the position.

The principal part of the Factories Act, which is applied to a building operation, is the power of the Secretary of State to make regulations for dangerous trades. This power has been exercised and a very extensive Code of Regulations has been made. You will all know this Code.

Building Operations Defined

Now I have said that certain parts of the Factories Act have been applied to building operations, so we have first to determine what a building operation is. This is the construction, structural alteration, repair or maintenance of a building (including re-pointing, re-decoration and external cleaning), the demolition of and the preparation for and the laying of the foundations of an intended building. If any of these things are being done then the Factories Act applies. There may, however, be some difficulty on occasions in determining whether a particular structure is a building. In many cases it is simple. A few houses are obviously building: a school is a building.

What is the position if you were constructing, say, a cooling tower, if you were putting up a steel works, or perhaps erecting a chimney? Difficulty does arise in these instances. Eventually, of course, only the courts can give an authoritative decision as to whether a particular structure is a building, and in some cases decisions have been given. On the other hand, it is quite explicit that places which are regarded as works of engineering construction are not buildings, and the Regulations which you know so well have then no application. Works of engineering construction are, generally speaking, the work which falls within the purview of civil engineering: the construction of a harbour, a tunnel, a bridge, a waterworks, a reservoir, or a gas holder.

Now having decided what is a building, and having decided that the jobs being done on that building make it a building operation, it is then clear that the Factories Act applies to it, and since the Factories Act applies to it, the Building (Safety, Health and Welfare) Regulations apply to it. There are, thus, many duties imposed upon the person who is responsible for carrying out that operation. I want to impress it upon you that these duties fall within the sphere of the Criminal Law and failure to carry out these duties is a crime, and in the normal way that failure can result in punishment; that is a fine. Furthermore, if someone is injured as a result of that failure, then he will probably have a Civil Law right of action, which can result in payment of damages to him.

Before we consider just what these duties are, let us consider who must comply with them. The Regulations lay down whose job it is to comply with them. The obligation is always on the contractor and employer of labour who is undertaking the building operation. Usually the obligation is on the contractor and employer as it affects workmen employed by him. You will appreciate that on every building operation there are usually many contractors and employers of labour. Each and every one of those must comply with the Regulations regarding his employees.

Now in addition to this general obligation, there are a few special obligations imposed under the Regulations; thus, so far as scaffolding is concerned, anyone who erects or alters any scaffolding must comply with such parts of the Regulations as relate to the erection or alteration of it. It does not matter whether his own employees or those of someone else are going to use that scaffolding.

With regard to cranes, lifting appliances, machinery and vehicles, every contractor who erects, installs or works these machines must comply with those parts of the Regulations that relate to the erection, installation or working of them. Hence, you will see that the firm or man who erects a crane has a duty in exactly the same way as the firm whose men use that crane.

A Further Duty

Then lastly, every person who is employed on a building operation must comply with those requirements as it affects his own individual acts, and he must co-operate in carrying out their requirements. He has a further duty of reporting any defect in scaffolding or plant, should he discover it.

I canot let the occasion pass, however, without making some reference to the specific regulation which requires the appointment of a safety officer, or his equivalent. Any firm engaged on these operations and who normally employ more than 50 persons, and that does not mean 50 persons on the same job, shall specifically appoint in writing, one or more persons experienced in building operations, and who are suitably qualified for the purpose of advising the employer as to the observance of the requirements and of exercising a general supervision over the work. This does not always mean a full-time appointment.

In concluding, Mr. Hillier reminded those present of some of the requirements of the Factories Acts including notification of accidents, provision of proper sanitary arrangements on sites, and so on.

IN PARLIAMENT

By Our Parliamentary Correspondent

St. James's Theatre Demolition

THE House of Lords has joined the Commons in the controversy about the proposed demolition of the St. James's Theatre in London and the erection of a block of offices on the site when it is cleared. Both peers and commoners have been particularly critical not only of the decision to permit this change, but of the Government's reluctance, or failure, to intervene by revoking the planning consent given by the London County Council.

As is often the case in these matters, individual actions draw attention to general principles, and these were discussed at length in the Lords on July 9, on which day there was a question in the Commons to the Minister of Housing and Local Government on the subject. At no stage, however, did either Government spokesmen give any indication of relenting from the attitude they had adopted, so much so that Lord Silkin, who raised the matter, expressed his dissatisfaction by saying that he would put down a motion urging that demolition should be postponed until Parliament had had an opportunity of stating its opinion.

LORD SILKIN argued that if the application originally made in 1954 for approval in principle to demolish the theatre had been made today it would undoubtedly have been refused, because it was recognised that there was a superfluity of offices in that part of London. The LCC made a mistaken decision in giving their approval, and the applicants, not being slow to make use of it, proposed to begin demolition next month. Between 1954 and today the impression was that the matter was not being proceeded with because the Government were opposed to the change of user in the area.

He thought that the LCC would be only too glad to revoke the consent, which they had been obliged to give, but for the question of compensation. The figure of £50,000 for compensation seemed greatly excessive.

LORD CONESFORD said that they were intervening to stop a blunder that would be deeply injurious to London and the reputation of the Government. Demolition would attract more office workers to this district of London, and to carry out this anti-social purpose it was proposed to destroy one of the most beautiful theatres in London. There had been no attempt by the LCC to defend the planning decision on its merits. There was no certainty about the compensation.

The default powers the Minister had for correcting mistakes in the use of land were not for use merely according to his whim, but for ensuring the right use of land everywhere. The Minister did not dispute that this was the wrong use of land, but had generally declared himself in agreement with Mr. Sandys, his predecessor, who described the case as one which 'slipped through the net.'

He was sure that the Minister had throughout been anxious to do the right thing. There was a legal doubt whether the Minister had been correctly advised by the department on what considerations were that he should have in mind in deciding whether to intervene to save the theatre. What the Minister had to consider was whether the proposed development was consistent with the Government's policy on the use of land. If the answer was that it conflicted with Government policy then the Minister should take action to prevent the blunder.

'No Architectural Merit'

LORD BLACKFORD said that the theatre possessed no interior merit worth preserving architecturally. It had a nice façade, but in St. James's-street there were at least four buildings with which it could not compare. Thus, from the architectural point of view, no case had been made out for retaining the theatre, and he hoped the Government would not take action in spending the ratepayers' money in Westminster on compensating the owner and retaining it.

LORD MANCROFT, Minister Without Portfolio, said that some of the facts, which were material, had gone a little astray. In 1955 Equity had expressed concern at the prospect of the loss of the theatre, and the Government asked for a report from the LCC, who stated that in 1954 outline planning permission had been given for the erection of an office block on this theatre site. What the council apparently had in mind was that the use proposed conformed with the general character of the area and its zoning in the development plan as it then stood, and that the proposed offices would conform to their planning standards.

Mr. Duncan Sandys, the then Minister of Housing, saw Mr. Prince Littler, the joint owner of the theatre, in an effort to save it. Mr. Littler had said that application by a prospective purchaser had been made without his knowledge or that of his partner. They themselves had no present intention of demolishing the theatre or selling it. Mr. Littler was not prepared to say that if the permission were revoked he would forgo the compensation that could be claimed.

That claim might amount to £50,000, or possibly more. He had heard a figure of £100,000 mentioned. The LCC were not prepared to revoke the permission at that cost to public funds, and Mr. Brooke, the Minister, was not prepared to direct them.

In 1955 Mr. Sandys had approved the LCC development plan laying down that permission would not be given, except in special circumstances, for a change of user for office purposes of residential buildings and places of assembly, such as St. James's Theatre, even in an office zone or in the central zone. Thus the hands of the LCC had become greatly strengthened. Unfortunately, planning alone could not save theatres.

In May of this year the Government were informed that detailed plans had been submitted to the LCC for an office building on this site. The plans, with minor modifications, would conform with planning standards. They had been put in by the present owners, a property investment company, but it was not known what transactions had occurred since 1955.

The Government much regretted the sale of this theatre to commercial interests. They also regretted that planning permission had been given for office development on the site. There was no power to prevent the demolition of any building, unless an order was made for its preservation as a building of special architectural or historic interest. General powers related only to what could be built in place of a building demolished.

LORD CONESFORD asked if Lord Mancroft would suggest to the Minister that he should take legal advice, possibly from the Law Officers, to ascertain whether, disapproving of this development as he was reported to do, he was right to consider that the question of compensation payable by the planning authority was a relevant reason for refusing to exercise his powers.

LORD MANCROFT said that he had noted that. An order to revoke planning permission should only be given in extreme cases, because it made nonsense of local government. It caused real injustice to a citizen who had obtained permission and then had it taken away. He would bring Lord Conesford's legal point to the attention of the Minister, but felt that he would be doing something which would be cowardly if he were to hold out hope that the Minister would be likely to change his opinion.

Rateable Value

In the Commons, MR. STOKES asked the Minister what was the rateable value of the St. James's Theatre; and whether he would state the estimated value of the site when the theatre has been pulled down.

MR. BROOKE: The present rateable value of the St. James's Theatre is £3,283, and the value of the cleared site is estimated at £250,000.

MR. STOKES suggested that that made nonsense of the Minister's statement last week. Did he not realise that the £250,000 was not included in the rateable value, and if that was so, the figure of £50,000 which he mentioned for compensation if the theatre was pulled down paled into insignificance.

MR. BROOKE said that it was seldom that one found the rateable value exceeded the site value in central London. He had informed the House that if the planning permission granted in 1954 were to be revoked he estimated the compensation from public funds would be upwards of £50,000.

MR. STOKES urged the Minister to indulge in a little mental arithmetic and assess what would be the value of a 20 years' purchase of the rateable value. He would find it would be about £70,000, whereas the site value would be £250,000. It would be to the national advantage to acquire the site, thus giving the people an asset worth £250,000.

MR. BROOKE said that the Socialist-controlled LCC did not think so.

Slum Clearance Progress

'ENCOURAGING' figures for slum clearance were reported by the Minister of Housing and Local Government in the Commons on July 9, and he expressed a desire to see an intensification of what he called the 'splendid efforts' of local authorities because he wanted a quickening of the pace in view of the importance of slum clearance.

MR. BROOKE said that the clearance programme was well under way. The number of unfit houses closed or demolished had risen from nearly 20,000 in 1954 and just more than 25,000 in 1955 to about 35,000 in 1956. The number of people from those old houses who had gone into new homes

was 61,000 in 1954, 75,000 in 1955 and 108,000 in 1956.

SIR IAN FRASER asked the Minister if the total amount of building this year would compare favourably with previous years.

MR. BROOKE said that that was a different question. There was no doubt that the amount of slum clearance that would be done this year would be in advance of that done in 1956.

MR. MITCHISON asked when local authorities would reach the figures they had expected to reach before the Government introduced their programme.

MR. BROOKE said that the only two successful slum-clearance drives in the nation's history had been under Conservative Governments.

Housing Subsidies

MR. GEORGE JEGER asked the Minister of Housing and Local Government whether he was aware that the Goole Town Council had more than 1,000 applications for houses, that it had ceased the building of houses except for slum clearance, and that last year only 25 council houses fell vacant; and whether he would take appropriate action, under Section 5 of the Housing Subsidies Act, 1956, to ensure that the normal housing needs of small towns were met.

MR. BROOKE: It is for the council to decide how many houses they will build and for what purposes, and to make application to me if they think they have a case for additional help under Section 5 of the Housing Subsidies Act, 1956. Goole have not applied.

MR. JEGER said that Goole were still wondering 'what had hit them' in the shape of the Government's housing policy. Could the Minister offer any hope whatever to the 1,000 or more applicants on the waiting list, or was there authority for saying he could do nothing for them?

MR. BROOKE said that it lay with the Goole council to decide how many houses they would build. He was placing no restrictions on them.

MR. LINDGREN suggested that with existing interest rates and the absence of subsidies, a net rent of 52s. 6d. or 54s. a week without rates made it impossible for a local authority to build for general needs.

MR. BROOKE said that most local authorities were wise enough to adopt some kind of differential rent scheme by which they could save money to reduce rents.

MR. PARKIN asked the Minister if he would draw up proposals to increase contributions to housing authorities borne on the Vote of his department towards the cost of special housing schemes for old people, in view of the rent increases permitted by the Rent Act.

MR. BROOKE: No. There is already a general subsidy for one-bedroom dwellings to encourage housing authorities to provide accommodation for old people.

Loan Charges

MR. MITCHISON asked the Minister to state for purposes of comparison, on the latest convenient date, the annual charges to be debited to the housing revenue account of a local authority for a typical three-bedroom house and its services built and provided with money borrowed from the Public Works Loans Board for 60 years, and similar loan charges for a similar house on the corresponding date in each year since and including 1951.

MR. BROOKE gave the information as:—

First quarter in each year	Interest and repayment charges on construction, land and services £ s. d.
1951	55 0 8
1952	75 4 7
1953	74 7 0
1954	71 8 10
1955	72 10 7
1956	97 8 7
1957	100 4 6

The table above is based on the average tender costs of three-bedroom houses for the first quarter of each year. The allowance made for land and services is only approximate. There are wide variations in the cost of land and services between different sites.

It is not possible to construct a series for a particular local authority as no council obtains tenders for houses at the same time year after year.

Thermal Insulation Bill

WHEN the Thermal Insulation (Industrial Buildings) Bill came before the House of Lords for second reading on July 8, LORD MILLS, the Minister of Power, said that the Government had considered the proposal that its provisions should extend to existing buildings, but had decided to support the decision to withdraw them because it would be 'wholly impracticable' to try to compel owners of existing buildings to insulate them in this way.

The Minister was replying to LORD FARINGDON, who said he would have liked the Bill to have extended not only to industrial buildings, but to domestic buildings and Government buildings—which he defined as 'buildings of one kind or another erected for local authorities.' Only last year, he went on, he had visited a magnificent new school, a superbly handsome building and a credit to the architects. As in all modern buildings, there was, as there should have been, enormous windows with a vast expanse of glass. On inquiring whether any attempt had been made to insulate those windows he was informed that there had been none, because the expenditure involved would have been too high. A little mental arithmetic on the information he had been given brought him to the conclusion that the expense of insulating the building would have been repaid in fuel economy in six and a half years.

He confessed to 'disappointment and dissatisfaction' at the application of the proposed regulations to existing buildings. He would have thought it perfectly possible to have had an interim period of five years after which a local authority inspector might be entitled to report on any industrial building in his area which failed to satisfy the conditions of the Bill, and after a further period of 12 months the local authority should be able to insist on the work being done, or, as was suggested in the Bill, actually undertaking the work themselves.

Delay Criticised

He had read with dismay that the Bill would not come into operation until January 1, 1959. There did not seem to be any compulsory clause under which prospective builders of industrial buildings must submit their plans for the insulation of buildings to local authorities. The weight of showing that a building did not conform to standards laid down was on the local authorities, and not on the builder who submitted the plans. A more satisfactory way of placing responsibility would have been to have said that the person submitting the plans and desiring to build should show that the building was properly insulated.

LORD MILLS said that on behalf of the Government he welcomed the Bill, the purpose of which was to secure fuel saving in industry. The thermal insulation of buildings was a good way to secure worthwhile savings in fuel. Dealing with the criticism that the Bill did not extend to domestic and other buildings, he said he was always ready to receive suggestions. After commenting on the Government's attitude to the original intention to extend the Bill to existing buildings, he said there were so many varieties of buildings, built in so many different styles, with so many different materials that it would require a horde of officials to ensure that anything worth while was done in many of them.

The date January 1, 1959, was put into the Bill because it was realised that the Minister would have 'quite a task' in drafting the regulations. He had no precedent to guide him, but had to say what standards were reasonable in relation to factories to avoid the need for many exemptions later on. It was unreasonable to suggest that the applicant should show that he had provided for the right insulation, and not for the local authority to show that he had. Plans had to be deposited with the local authorities. Insulation was only one factor, and it was one which the local authorities would now have to look for.

The Bill was read a second time.

Downing-street Preservation

AN independent inquiry, under the chairmanship of the Earl of Crawford and Balcarres, chairman of the Royal Fine Art Commission, is to be held into the planning of measures to remedy structural defects at Nos. 10, 11 and 12, Downing-street before a start on the work is authorised.

This was announced in a written reply by the Prime Minister on July 11.

MR. MACMILLAN said that a survey of the three houses carried out by the Ministry of Works in 1954 had given rise to some concern about their stability. There had been irregular settlement because of the poor sub-soil, and decay of the timber supports of the foundations. There had at times also been dry rot and beetle in the floors and roofs.

There was no danger of collapse in the next few years, but it was clear that fairly extensive remedial measures would have to be undertaken, and the Ministry of Works had given some thought to the planning of those measures. On a matter of such magnitude and public interest, he had thought it right to take advice from persons independent of the Government before authorising a start on the work.

He had appointed a committee under the chairmanship of the Earl of Crawford and Balcarres, with the following terms of reference: 'To consider the report of the Ministry of Works on the present condition of Nos. 10, 11 and 12, Downing-street and the proposals for reconstruction; to make such

inquiries as appear to them necessary; and to report to the Prime Minister what action they recommend should be taken to preserve these historic buildings and to make them suitable for their present purposes.'

OTHER BUSINESS

Tower Hill Redevelopment

MR. PARKER asked the Minister of Housing and Local Government what progress had been made with the approval of the revised plans for the Tower Hill area.

MR. BEVINS, Parliamentary Secretary to the Ministry, replying on July 9, said if Mr. Parker is referring to a proposal that building should be allowed on a small part of the land proposed for new open space in the development plan, a public local inquiry has just been held into this, and the Minister is now awaiting his inspector's report.

Parking Space, New Zealand House

CAPTAIN PILKINGTON asked the Minister of Housing and Local Government, on July 9, how much parking space would be provided at ground or other levels in the New Zealand House, which would replace the Carlton Hotel.

MR. BEVINS.—I understand that the plans provide for parking space for 39 cars under the building which is to replace the Carlton Hotel.

Fixed Price Tenders

MR. PAGE asked the Minister of Works, to what extent the decision of the Government that in future all Government departments should invite tenders on a fixed price basis for works of building and civil engineering had been implemented by the departments.

MR. HUGH MOLSON, in a written reply on July 9, stated.—The decision announced on April 30 applied only to projects which have been thoroughly planned in advance and which can be completed within two years. Departments concerned have made arrangements for fixed price tenders to be invited for suitable jobs as they reach the appropriate stage of full planning. The results in my own department over a year's experimental period have been satisfactory.

Road Surfacing, Southwark

MR. ISAACS asked the Minister of Transport and Civil Aviation, if he would reconsider his department's recommendation that the road surfaces in the reconstructed Elephant and Castle area in Southwark should be of rolled asphalt as against the opinion of the London County Council and Southwark Borough Council in favour of mastic granite, in view of the fact that rolled asphalt would last only for five to seven years against 12 to 15 years for mastic granite, and that in addition to the ultimate economy there would be less interference with traffic if the granite was used.

MR. HAROLD WATKINSON, in a written reply on July 9, stated.—I have agreed to the use of mastic asphalt at bus stops, but elsewhere I am advised that rolled asphalt will be satisfactory. It can reasonably be expected to have a life of not less than 10 to 15 years even under heavy traffic. The application for grant received from the London County Council provides for rolled asphalt, but I have just learned that the council wish to give further consideration to this question.

Government Assistance for Houses

MR. GIBSON asked the Minister of Housing whether, as the number of local authorities who were ceasing house building because of the increase in interest charges had increased since March, he now proposed to reconsider the question of Government assistance to housing authorities.

MR. BROOKE stated in a written reply: No. If a local authority consider that they cannot build houses which they ought to build without incurring unreasonable burden they can make application for additional assistance under Section 5 of the Housing Subsidies Act, 1956.

SURREY'S GREEN BELT

Extension to be Recommended to Minister

SURREY town and country planning committee have come to the conclusion, in agreement with the authorities concerned, that when the county development plan has been approved by the Minister the County Council would be justified in seeking the Minister's approval for it to be amended to provide for an extension of the Green Belt, broadly in a southerly and westerly direction.

The areas affected are in the main areas shown in the development plan as 'white areas,' within which it was expected that existing uses would mostly remain undisturbed.

No formal amendment of this nature to the development plan can be made until the Minister has approved the plan as a whole. The committee will then submit a recommendation to the County Council.

In the meantime, they state, they will exercise planning control against the background of their desire that the Green Belt should be extended, and have informed the Minister of Housing and Local Government accordingly.

The desirability of extending the Green Belt in Surrey had been examined by the county planning committee in consultation with the county district authorities and area sub-committees following a recommendation by the Minister that local planning authorities should consider establishing further areas of Green Belt in order to (a) check the further growth of a large built-up area; (b) prevent neighbouring towns from merging into one another; or (c) preserve the special character of a town.

Films in Industry

The Festival of Films in the Service of Industry is to be held in Harrogate, from October 8 to 12 under the presidency of Lord Godber, and sponsors and producers of films made for industrial purposes have been approached to submit films for consideration by the selection panels. These panels will view all the entries submitted and will make a selection to go forward for competitive exhibition at the Festival. Application forms and details from the Organising Secretary of the Festival at 3, Portman Chambers, 7/9, Baker-street, London, W1.

BOOK

*** Books reviewed in these columns may be obtained on application to the Book Dept., "The Builder," 4, Catherine-street, Aldwych, WC2. Cash (which should include 1s. to cover postage and packing) should accompany the order.*

ENGINEERING STRUCTURAL FAILURES. By Rolt Hammond, ACGI, AMICE. (London: Odhams Press, Ltd.) 224 pp. Price 25s.

THIS is a comprehensive, authoritative and up-to-date book, of much interest to all engineers, and especially to those engaged in designing, detailing, fabricating or erecting structures. During perusal, the reader realises much more fully that by understanding and appreciating the cause of engineering structural failures, as revealed by inquiries into the causes of the disasters, the information obtained is used to turn failures into successes.

A chapter on bridges makes factual and exciting reading. Following descriptions of two attempts made to erect the Quebec Bridge, resulting in disastrous failures, the reader becomes acquainted with the details of the investigations into the causes of the failures, eventually learning that the engineers responsible for designing the new structure took full advantage of the knowledge gained from the collapse of the previous structures, and subsequent tests. This systematic writing technique is employed throughout the book.

Four more bridge failures are described, and the results of the investigations into the causes of the failures are noted. The aerodynamic properties of bridges are discussed, and in this connection scale model research on the design of the proposed Severn Bridge is described. There are chapters dealing with failures of earthworks, dams, maritime structures, buildings, underground structures, and welded structures, including ships. The causes, and possible causes, of these failures are clearly set out. There is also a chapter in which vibration problems, with remedial measures, in connection with large steelworks buildings, foundations for machinery and forging hammers, are explained. Earthquake problems, the principles of earthquake-resistant design, and vibration effects of blasting, are also dealt with.

In a final and most instructive chapter, entitled 'Lessons of Failures,' the author gives information on the use of strain gauges, descriptions of full-scale tests to destruction, carried out on a prestressed concrete bridge, and on welded portal frames. Resonance tests on aircraft, Comet failures and fatigue tests, Hatfield Aircraft testing tank, dynamic stresses in girder bridges, and X-ray testing techniques, are also described. The text is illustrated with many photographs and diagrams, whilst for further study references are provided at the end of each chapter.

The author is to be congratulated on providing a most useful survey of structural failures, their causes and results.

JOHN FARRELL.

The late L. E. Wade

MR. L. E. WADE, FRIBA, of Darlington, a partner in the firm of Kitching & Co., 21, Albert-road, Middlesbrough, architects and surveyors, has died on holiday at Jersey at the age of 65.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	7	1
Pit Sand	„	1	4	6
Washed Sand	„	1	7	8
¾ in. Shingle	„	1	4	0
¼ in. Broken Brick	„	1	0	9
Pan Breeze	„		10	9
Fine or Coarse Foamed Slag Aggregate	per ton	3	5	0
2 yds. of fine and 2.6 yds. of coarse per ton.				

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area.				
6-ton loads and upwards, site	per ton	5	12	0
1 to 6 tons, site	„	6	4	0
Rapid Hardening Cement in 6-ton loads and upwards to site	„	6	2	6
1 to 6 tons do. site	„	6	14	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.				
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.				
Red, Buff or Khaki Colorcrete in 6-ton lots ...	„	8	12	0
Other colours according to colour.				
In 4-ton lots from 310s. 0d. to 780s. 0d. per ton.				
White Portland Cement	„	13	17	6
Under 1 ton	per cwt.		16	6
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	7	4	6
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £11 10s. 0d. to £14 5s. 0d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	„	15	10	3
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	„	6	17	6
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	11	0

BRICKS

		£	s.	d.
Full Loads.				
First Hard Stocks	per 1,000	13	14	6
Second Hard Stocks	„	12	13	6
Mild Stocks (Kiln Burnt)	„	9	4	0
Mild Stocks	„	8	19	0
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½in. Nominal Fletton Bricks to sites in W.C. District Commons	„	5	18	0
Cellular do.	„	5	18	0
Keyed do.	„	6	0	0
Rustics	„	7	10	0
Cellular Rustics	„	7	10	0
Single Bullnose Commons	„	7	12	6
Sandfaced	„	8	10	0
Tuscans	„	9	5	0
Saxons	„	9	13	0
Golden Buffs	„	10	0	0
Dapple Light	„	10	7	6
Best Blue Pressed Staffs (London Stations) ...	„	29	15	6
„ Bullnose (London Stations)	„	30	9	6
Blue Wire Cuts (London Stations)	„	26	19	0
Midhurst Lime Bricks (London sites)	„	10	8	0
Uxbridge Whites (London sites)	„	10	2	0
Special Purpose Sandlime Bricks (London sites) ...	„	7	18	6
2½ in. Best Stourbridge Fire Bricks (London Stations)	„	29	9	9
3 in. do. (London Stations)	„	35	7	9
2⅝ in. Moler Flue Bricks (London sites)	„	37	10	0
2⅝ in. Machine-made Sandfaced Red Facings (London sites)	„	15	18	6
2⅝ in. Machine-made Multi Red Facings (London sites)	„	16	3	6
2⅝ in. Hand-made Sandfaced Red Facings (London sites)	„	15	18	6
2⅝ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	per 1,000	16	13	6
Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites)	„	18	14	0
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites)	„	18	14	0
Rubber Bricks for gauged arches (London sites) ...	„	42	17	6
2⅝ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	„	13	14	0
2⅝ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	„	15	6	0
Glazed Bricks (London sites), White, Ivory, Brown—				
Stretchers	„	64	0	0
Headers	„	63	0	0
Quoins, Bullnose and 4½ in. Flats	„	80	0	0
Double Stretchers	„	85	0	0
Double Headers	„	77	10	0
One side and two ends	„	87	0	0
Two sides and one end	„	89	10	0
Splays and Squints	„	83	0	0
Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 32½% for Best quality and plus 32½% less 10% for Second quality.				

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District.)

	Minimum lorry loads		£	s.	d.
HOLLOW CLAY PARTITION BLOCKS (Keyed)					
*2 in.	140 yds.	per yd. sup.		4	5
*2½ in.	140 yds.	„		4	8
*3 in. (3 cavity) ...	120 yds.	„		5	5
BUILDING BLOCKS (Keyed)					
*3 in. (6 cavity) ...	110 yds.	„		5	7
*4 in. (6 cavity) ...	95 yds.	„		6	10
6 in. (8½ in. × 5⅝ in.)	1,250 blocks	per 1,000	26	18	0
*Half blocks at no extra charge.					
CLINKER CONCRETE					
2 in.	100 yds.	per yd. sup.		3	9
2½ in.	85 yds.	„		4	4
3 in.	75 yds.	„		5	3
4 in.	55 yds.	„		6	5
CRANHAM					
2 in.		„		6	9
2½ in.		„		7	5
3 in.		„		8	9
4 in.		„		10	9
4½ in. Load bearing quality		„		11	10
MOLER PARTITION BLOCKS					
2 in.	150 yds.	„		16	0
2½ in.	120 yds.	„		16	6
3 in.	100 yds.	„		17	0
4 in.	90 yds.	„		19	9
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE					
2 in.	100 yds.	„		5	10
2½ in.	80 yds.	„		7	0
3 in.	65 yds.	„		8	2
4 in.	50 yds.	„		9	8
4½ in.	44 yds.	„		10	4
6 in.	33 yds.	„		13	10½
THERMALITE-YTONG PARTITION BLOCKS					
2½ in.	144 yds.	„		7	0
THERMALITE-YTONG LOADBEARING INSULATING BLOCKS					
3 in.	120 yds.	„		8	5
4 in.	90 yds.	„		11	0
5 in.	72 yds.	„		13	9
6 in.	60 yds.	„		16	6
8½ in.	42 yds.	„	1	3	8
FLOOR BLOCKS AND FILLER TILES					
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads		per 1,000	34	1	0
4 in. do		„	36	10	0
5 in. do.		„	43	15	0
6 in. do.		„	49	19	0
7 in. do.		„	61	8	0
8 in. do.		„	71	19	0
12″×3″×¾″Filler Tiles in multiples of 10 tiles per 1,000 multiples			42	15	0
12″×4″×¾″ do. do.			73	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Revised Standard List (Nov., 1956) prices delivered London Area.

Delivered ex Merchants Wharf or Depot or Manufacturers Works.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality ...	−2½%	+13¼%	+20%
BSS Best do. ...	+10%−2½%	+10%+13¼%	+10%+20%
Tested Quality ...	+37½%−2½%	+37½%+13¼%	+37½%+20%
BSS Tested do.	+47½%−2½%	+47½%+13¼%	+47½%+20%

STONEWARE DRAIN PIPES, etc.—*continued*

	£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ... per 1,000	11	10	6
4 in. do. ... ... ,,	15	3	6
6 in. do. ... ... ,,	31	9	0
9 in. do. ... ... ,,	59	13	0

DAMP COURSE

Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area ... ... per yd. sup.	3		5½
Asbestos base ditto 7 lb. per yd. sup. do. do. ,,	5		3
Lead lined bitumen ditto 9½ lb. per yd. sup. do. ,,	12		2
18 in. × 9 in. British damp course slates ... ... per 1,000	43	8	11
14 in. × 9 in. do. do. ... ... ,,	32	8	2
9 in. × 9 in. do. do. ... ... ,,	18	18	9
18 in. × 4½ in. do. do. ... ... ,,	19	19	9
14 in. × 4½ in. do. do. ... ... ,,	15	18	3
9 in. × 4½ in. do. do. ... ... ,,	10	14	3

STONE

Bath Stone—			
Monks Park ... ... per ft. cube	8		1½
St. Aldhelm Box Ground ... ... ,,	9		1½
Delivered in railway trucks at South Lambeth B.R. Western Region.			
Doulting Stone Random Blocks. Delivered London area ,,	8		11
Beer Stone. Delivered London area ... ... ,,	8		5
Portland Stone—			
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ... ... ,,	8		5
Yorkshire Stone—Blue Robin Hood Quality.			
Delivered to site London in 6-ton lots.			
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ... ... per ft. cube	4	1	9
12 in. × 6 in. do. do. ... ... ,,	2	18	3
12 in. × 3 in. Plain coping, twice throated ... ,,	2	5	3
12 in. × 3 in. Weathered and twice throated coping ,,	3	0	3
14 in. × 6 in. do. do. ... ... ,,	2	14	3
4½ in. × 9 in. Plinth rubbed on top and face ... ,,	2	8	6
3 in. sawn two sides Slabs, random sizes ... ... per ft. sup.	8		8
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ... per ft. cube	1	9	9
do. do. fair one edge for fair faced brickwork ... ... ,,	1	15	3
Hard York—			
12 in. × 2 in. Square Steps, rubbed on top and edge per ft. run	10		6
14 in. × 3 in. Round-nosed Steps, rubbed on top and front ... ... per ft. cube	2	15	6
12 in. × 6 in. Plain Steps, rubbed top and front ... ,,	2	8	6
2 in. Rubbed and Jointed Paving, given sizes ... per ft. sup.		9	9
2 in. Sawn Paving, edges squared, in random sizes per yd. sup.	3	8	6

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	19	0
Hand-made Pantiles Berkshire district	55	18	0
Hand-made Double Roman Bridgwater district	59	5	0
Hand-made 10½ × 6½ tiles Berkshire district	15	9	0
Machine-made 10½ × 6½ Staffordshire district	14	1	9
Hand-made Hip and Valley tiles per doz.	1	11	3
Machine-made Hip and Valley tiles do.	1	8	0
Concrete tiles 10½ × 6½	8	5	6
do. Interlocking (49S)	19	9	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.			
24 × 12	143	15	10
22 × 12	116	17	4
22 × 11	105	10	10
20 × 12	99	0	1
20 × 10	94	16	9
18 × 10	65	16	9
18 × 9	57	14	0
16 × 10	51	17	0
16 × 8	40	11	9

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—				
Joinery quality	Ex Wharf	per standard	£115 to £140	
Carcassing quality	do.	,,	£97 to £102	
1 in. Tongued and Grooved Flooring	do.	,,	£110	0 0
Hardwood—				
Mahogany —African S.E.	do.	per ft. cube	1	10 0
do. Honduras do.	do.	,,	3	5 0
Oak European do.	do.	,,	2	5 0
do. Japanese do.	do.	,,	2	10 0
do. English Logs sawn	do.	,,	2	0 0
Teak 8 in. average S.E.	do.	,,	3	17 6
Walnut African Logs sawn	do.	,,	1	5 0

DOORS (In Lots I-II)

Delivered London area.	£	s.	d.
1½ in. 4 Horizontal Panel. Pattern 4 in. deal			
2 ft. 0 in. × 6 ft. 6 in. ... ... each	1	16	0
2 ft. 3 in. × 6 ft. 6 in. ... ... ,,	1	17	6
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	1	18	6
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	0	6
2 in. do. but top panel open. Pattern 4 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	9	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	11	6
2 in. 2 Panel, top panel open. Pattern 2 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	3	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	5	0

SUNDRIES

Delivered London area.			
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ... ... per yd.	6		2
1½ in. do. (67 yds. to 1 ton) ... ... ,,	8		0
2 in. do. (52 yds. to 1 ton) ... ... ,,	9		9½
2½ in. do. (45 yds. to 1 ton) ... ... ,,	11		3
3 in. do. (39 yds. to 1 ton) ... ... ,,	12		7½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
½ in. imported insulation Board, quantities over 5,000 sq. ft. per 100 sq. ft.	2	2	6
¼ in. Hardboard do. ... ... ,,	2	1	6
⅜ in. do. do. ... ... ,,	3	2	6
⅜ in. Asbestos Flat Building Sheets ... ... per yd. sup.		4	3
½ in. do. ... ... ,,		5	9½
Roofing Felt, 1-ply ... ... ,,		1	9
do. 2-ply ... ... ,,		2	2½
Best Scotch Glue in slabs ... ... per ½ cwt.	5	0	0
do. pearl ... ... ,,	5	5	0
Croid Glue ... ... 28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots) ... ... per ton	73	0	0
do. 4 in. and up (1-ton lots) ... ... ,,	69	10	0
Wire Nails, 3 in. (4-cwt. lots) ... ... per cwt.	3	6	10
do. 4 in. and up (4-cwt. lots) ... ... ,,	3	6	3

METALS

STEEL JOISTS, ETC.

Basis Joists—			
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in. plain cut to lengths delivered London area ... ... per ton	48	2	6
Extra for sizes			
3 in. × 1½ in. 4 in. × 1½ in. ... ... ,,	3	10	0
3 in. × 3 in. ... ... ,,	2	10	0
4 in. × 3 in. ... ... ,,	2	5	0
10 in. × 4½ in. ... ... ,,	1	10	0
5 in. × 2½ in. 5 in. × 3 in. ... ... ,,	1	15	0
4½ in. × 1½ in. ... ... ,,	3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. ,,		15	0
6 in. × 3 in. 24 in. × 7½ in. ... ... ,,	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. }			
9 in. × 4 in. 10 in. × 5 in. ... ... } ,,	1	5	0
12 in. × 5 in. 22 in. × 7 in. ... ... ,,	1	0	0
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in. }			
14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. }			
15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. } ,,		10	0
16 in. × 8 in. 18 in. × 6 in. 18 in. × 7 in. }			
18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in. }			
Steel angles average price ... ... ,,	50	5	0
Steel tees average price ... ... ,,	51	5	0
Fabricated work delivered London—			
R.S. Joists cut and fitted ... ... ,,	67	12	6
Compound girders ... ... ,,	74	0	0
Stanchions ... ... ,,	79	10	0
Compound stanchions ... ... ,,	84	0	0
In Roof Work—Trusses and Purlins ... ... ,,	97	12	6
Average prices not for awkward work.			
Angle cleats and ⅜ in., ½ in. and ⅝ in. bolts average price London area ... ... per cwt.	5	10	0

FERRO-CONCRETE BARS

Mild Steel Ferro-Concrete bars British manufacture to BSS785 ex London Stock ⅜ in. diam., and upwards ... ... per ton	46	5	0
¼ in. diam. ... ... ,, extra	8	12	0
⅜ in. do. ... ... ,,	6	12	0
½ in. do. ... ... ,,	4	12	0
⅝ in. do. ... ... ,,	3	2	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts :

Galvanised Tube—	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Class A	+12½%	+ 7½%	Light +35%	Malleable List
Class B	+24 %	+19 %	Heavy +42½%	−25%+40%
Class C	+42½%	+37½%		
Black—				
Class A	− 8½%	−13½%	Light +22½%	Malleable List
Class B	+ 4½%	− 2½%	Heavy +30½%	− 25%
Class C	+19½%	+14½%		

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/11½	3/6	1/-
3½ in.	4/3½	3/10	1/-
4in.	5/6½	4/4	1/6
4½in.	6/1½	4/10	1/10
5 in.	6/9½	5/3	2/1

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	5/1½	4/7	1/3
3½ in.	5/8½	4/7	1/6
4 in.	6/3½	4/10	1/10
4½ in.	6/9½	5/6	2/1
5 in.	7/5½	6/4	2/5

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	8/5½	4/4	6/3
2½ in.	8/5½	4/10	8/4
3 in.	9/6	6/–	9/–
3½ in.	10/9½	7/1	10/10
4 in.	12/6	8/7	12/10

L.C.C. Coated Soil Pipes

2 in.	9/7½	7/5	9/–
2½ in.	10/1½	8/3	11/3
3 in.	11/4½	9/–	13/4
3½ in.	12/8½	11/3	15/6
4 in.	14/5½	12/6	18/4

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 20% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes

In 9-fts.

	cwt.	qt.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	33/6	23/–	41/–
6 in.	2	0	1	49/2	61/3	98/–

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	per yd.	4/3	4/6½	5/6	7/3½
Shoes	each	2/9	3/–	3/7	4/10
Single Branches	„	4/4	5/1	6/1	8/6
Bends square or obtuse	„	3/–	3/4	4/4	6/1
Swan Necks 4½ in. proj.	„	3/4	4/4	4/10	6/9
„ 6 in. „	„	3/7	4/4	5/5	7/3

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	4/1	4/5½	5/4	6/4½
Drop ends	each	3/3	3/9	4/5	5/2
Stop ends	„	1/–	1/1	1/2	1/4
Angles	„	3/4	3/10	4/8	5/5
Nozzles	„	3/3	3/9	4/5	5/2
Union Clips	„	1/7	1/11	2/4	2/8

Asbestos Half-Round Gutters and Fittings

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	2/10	3/4½	3/5½	4/1	5/8
Drop ends	each	2/4	2/9	3/–	3/4	4/10
Stop ends	„	–/11	1/–	1/1	1/2	1/4
Angles	„	2/8	3/–	3/4	3/7	4/10
Nozzles	„	2/4	2/9	3/–	3/4	4/10
Union Clips	„	1/2	1/3	1/4	1/6	2/3

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	49 7 6
Mild Steel Bars	43 18 0
Mild Steel Hoops	44 2 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	58 2 6
24 gauge	60 12 6
26 gauge	63 12 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	66 10 0
24 gauge	70 0 0
26 gauge	75 5 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	68 0 0
24 gauge	71 10 0
26 gauge	76 15 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1740 S1C 18 SWG (36 in. wide)	per lb.	2 11
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	„	2 8½
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	„	2 10
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	„	2 8
Coiled strip for flashing 99.7% purity 22 SWG (12 in. wide)	„	3 0½
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 12 6
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31½ in. × 20 SWG.	„	1 18 1
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31½ in. × 20 SWG	„	1 11 7
Extruded section BS 1476 E1C simple moulding	per lb.	2 9
Extruded section BS 1476 E1C 1 in. diam. round	„	2 6½
Extruded section BS 1476 HE1WP simple angle	„	3 0
Extruded section BS 1476 HE10WP 1 in. diam. round	„	2 11
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG	„	4 4½
Tubing BS 1471 HT10WP 1½ in. O/D × SWG	„	5 8

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

	M.O.H. ½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
All per doz.						
Screwdown bib cocks Crutch head for iron	87/–	128/8				
Toilet bib cocks for iron	109/–	158/5				
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/–
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
	1½×6 lb.		1½×6 lb.	2×7 lb.		3×7 lb.
Lead P. trap with brass cleaning screws	68/6		85/6	137/–		234/–
Lead S. trap do.	83/–		102/6	168/3		302/–
Solder						s. d.
Plumbers'	1 cwt. lots		332/–	14 lb. lots per lb.		3 6
Tinmen's	„	„	408/–	„	„	4 1
Blow pipe	„	„	411/–	„	„	4 3

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 25½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.		d.		d.
½ in. × 19 gauge	14¼	Total per lb.	40¼	approx per ft.	11
¾ in. × 19 „	13	„ „	38¾	„ „	15
1 in. × 18 „	11½	„ „	37¼	„ „	23½
1¼ in. × 18 „	10⅞	„ „	36⅝	„ „	28
1½ in. × 18 „	10⅞	„ „	36⅝	„ „	33½
2 in. × 17 „	12½	„ „	38¼	„ „	53¼

Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras ... ... per ton £267 0 0

Zinc

			£ s. d.
Sheet Zinc	10 gauge (25 SWG)	5 cwt. lots upwards per cwt.	8 9 0
do.	12 gauge (23 SWG)	„ „	8 6 6
do.	14 gauge (21 SWG)	„ „	8 5 3

Brass Tubes

Brass tubes basic price, plus gauge and manufacturing extras ... ... per lb. 1 9½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	130 5 0
Lead Water Pipe in coils	„	132 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia.	„	134 0 0
„ over 4 in. dia.	„	136 0 0
Lead Gas or Untinned Compo pipe	„	134 0 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	„	4 0
1 cwt. do. 3 cwt.	„	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £80 15s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	8 2 3
do. White do. do.	„	8 11 9
Siripite Coarse do. do.	„	8 4 3
do. Fine do. do.	„	8 12 3
Blue Lias Lime in 6-ton loads	„	6 14 6
Hydrated Lime (Grey) do.	„	5 17 6
do. (White) do.	„	6 5 0
Lump Lime (Grey) do.	„	5 7 0
do. (White) do.	„	5 14 6
White Keen's or Parian Cement in 1-ton loads	„	11 11 9
Pink Keen's or Parian Cement in 1-ton loads	„	11 6 6
Granite Chips in 6-ton loads	„	2 10 1
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site	per yd.	2 4
1,200 yds.	„	2 3½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	„	3 0
1,200 yds.	„	2 11½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery Delivered site	„	2 7
1,200 yds.	„	2 6½
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	„	3 3
1,200 yds.	„	3 2½

PAINT AND DISTEMPER

		£ s. d.
Delivered London area		
Ceiling Distemper	per cwt.	1 7 6
Washable Distemper	„	5 5 0
Gloss Paint	per gal.	2 12 0
Snowcem cement paint (in 1 cwt. drums)	per cwt.	3 11 0
LEAD PRODUCTS AND OILS		
Ground White Lead, in 1 cwt. kegs	per cwt.	8 18 3
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3 9 6
Genuine Red Lead, Dry, 1 cwt. keg.	per cwt.	6 7 0
Genuine Linseed Oil Putty, 1 cwt. keg	„	2 14 0
Size XD quality 28 lb.	per tin	9 0
Raw Linseed Oil (5 gal.) drums extra	per gal.	18 6
Boiled Linseed Oil (5 gal.) do.	„	19 0
SUNDRIES		
Turpentine substitute (5 gal.) drums extra	„	5 3⅞
do. do. (40 gal.) do. do.	„	4 7⅛
Solignum, Brown (5 gal. cans) Exterior	„	8 4
Creosote (40 gal. barrels)	„	2 3
Paste Powder (1 lb. packets)	per lb.	2 0
White Lining Paper	per piece	1 2½

VARNISHES, etc.

		£ s. d.
Delivered London area		
Oak Varnish, Outside or Inside	per gal.	2 0 0
Oak Pale Copal do.	„	2 0 0
Hard Drying Oak for Inside	„	2 5 0
Crystal Paper Varnish do.	„	2 8 0
Eggshell Flat Varnish do.	„	2 6 0
Finest Carriage Varnish	„	2 7 0
Front Door Varnish	„	2 4 0
Japan Gold Size	„	1 18 0
Black Japan	„	1 16 0
Brunswick Black	„	1 12 0
Berlin Black	„	1 10 0
Terebene	„	1 17 0
Knotting (1 gal. bottles free)...	„	2 8 0
French and Brush Polish (do.)	„	2 2 0

GLASS

	per ft. super s. d.
Delivered London area	
18 oz. Sheet Glass Ordinary Glazing Quality-Cut Sizes	7½
24 oz. „ „ „ „ „ „	9½
26 oz. „ „ „ „ „ „	1 0½
32 oz. „ „ „ „ „ „	1 3½
⅛ in. Rolled Plate	10⅞
⅛ in. and ¼ in. Rough Cast	1 2½
⅛ in. Figured Rolled and Cathedral, Standard patterns :	
White Group 1	10½
do. Group 2	1 2
do. Standard Tints	1 8
do. Special Tints	3 4
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	1 3½
¼ in. Wired Cast	1 5
¼ in. Georgian Wired Cast...	1 5½
Hollow Glass Blocks—	Each
P.B.2. 5¾ × 5¾ × 3⅞ in.	3 3
P.B.3 7¼ × 7¼ × 3⅞ in.	5 0
P.B.32 7¾ × 7¾ × 3⅞ in.	5 0
Radiused Corner Blocks to match up with—	
P.B.2	6 0
P.B.3	7 6
P.B.32	7 6
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 10
„ „ „ 5 ft. sup.	4 9
„ „ „ 45 ft. sup.	5 7
„ „ „ 100 ft. sup.	6 0
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	9 0
Not exceeding 180 ft. sup. or ditto	12 1
Plates exceeding 180 ft. sup. prices on application.	
Substances other than ¼ in. Polished Plate at Special Prices.	

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s. d.
18 oz. sheet O.Q.	3,000	5¾
24 oz. „ „	2,000	7¼
26 oz. „ „	2,000	9½
32 oz. „ „	2,000	1 0¾
⅛ in. Rolled Plate	1,000	8⅛
⅛ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000	8¼
do. Group 2	1,000	10¼
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000	11⅞
⅛ in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	1 0
¼ in. Wired Cast, Hexagonal	2,000	1 2
¼ in. Georgian Wired Cast	2,000	1 2½

The Builder

CURRENT RATES OF WAGES

AS FROM MAY 27, 1957. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1
Craftsmen	4/6	4/5½
Labourers	3/11½	3/11

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A1
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A1
Amersham	A1
Ammanford	A
Andover	A1
Anglesey, Isle of	A1
Ardingly	A1
Arundel	A1
Ascot	A1
Ashbourne RD	A1
Ashbourne UD	A1
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A1
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A1
Atherstone RD	A
Attleborough	A1
Axminster	A1
Aylesbury	A1
Aylsham	A1
Bagshot	A1
Bakewell UD	A1
Banbury	A1
Bangor	A1
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A1
Barrow-in-Furness	A
Barrow-upon-Soar RD (part Thrussington)	A1
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A1
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A1
Bideford	A1
Biggleswade	A1
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A1
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A1
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A1
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A1
Bognor Regis	A1
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A1
Bracknell	A1
Bradford CB	A
Bradford-on-Avon	A1
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of	‡A1
Brent Knoll	A1
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A1
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A1
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A1
Buckingham	A1
Buckley	A
Bungay	A1
Burnham-on-Crouch	A1
Burnham-on-Sea	A1
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A1
Caernarvonshire, Cnty. of	‡A1
Calder Valley	A
Camberley District	A1
Cambridge	A
Cannock UD	A
Canterbury	A1
Cardiff	A
Cardiganshire, County of	‡A1
Carlisle	A

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire,Cnty of ‡	A1
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A1
Charmy Down	A
Chatham District	A
Chatteris	A1
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A1
Chipping Norton	A1
Chipping Sodbury	A1
Chippenham (inc. Chippenham Within and Hardenhuish)	A1
Chorley	A
Cirencester	A1
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A1
Corsham District	A
Coventry CB	A
Cranbrook	A1
Cranleigh	A1
Cranwell Aerodrome Site	A
Crawley	A1
Crewe	A
Crewkerne	A1
Cromer	A1
Crook and Willington UD	A
Crowborough	A1
Cuckfield	A1
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A1
Darwen	A
Daventry MB	A1
Deal	A1
Denbigh Town	A1
Derby CB	A
Devizes	A1
Devon, County of	‡A1
Dewsbury CB	A
Didcot	A1
Diss	A1
Doncaster CB	A
Dorchester	A1
Dorking	A
Dorset, County of	A1
Dover	A1
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val	A
East Grinstead District	A1
East Kesteven RD	A1
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A1
Ely	A1
Epping	A
Evesham MB	A1
Exeter	A
Exmouth	A1
Fakenham	A1
Falmouth	A1
Fareham	A
Faversham	A1
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A1
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A1
Gillingham (Kent)	A
Glastonbury & Street	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of ‡	A1
Godalming	A1
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A1
Guildford District	A1
Halesowen MB	A
Halifax CB	A
Halstead	A1
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A1
Harwich	A
Haslemere	A1
Hastings	A1
Hatfield (Herts)	A
Havant	A
Haywards Heath	A1
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A1
Hereford	A1
Herefordshire, Cnty. of	‡A1
Herne Bay	A1
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A1
Horncastle UD	A1
Horsham	A1
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A1
Huntington (Staffs)	A
Ilfracombe	A1
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A1
Isle of Thanet	A1
Isle of Wight	A1
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteignton	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A1
Leominster	A1
Letchworth	A
Lewes	A1
Lichfield MB	A
Lincoln CB	A
Liskeard	A1
Littlehampton	A1
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A1
Llangollen	A1
London	*
Long Eaton	A
Looe	A1
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A1
Ludlow MB	A1
Ludlow RD	A1
Luton	A
Lyme Regis	A1
Lyneham (Devon)	A1
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A1
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A1
Margate	A1
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A1
Martock	A1
Maryport	A
Matlock UD	A
Melksham	A1
Melton Mowbray UD	A1
Merionethshire	A1
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A1
Milford Haven UD	A1
Minehead	A1
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A1
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A1
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A1
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A1
Newquay	A1
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A1
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A1
Oakham UD	A1
Okehampton	A1
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A1
Oundle UD	A1
Oxford	A
Oxted	A1
Padstow	A1
Paignton	A1
Par	A1
Pembrokeshire (except Milford Haven)	A1
Penmaenmawr	A1
Penrith UD	A1
Penzance	A1
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A1
Pickering	A1
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Porthcawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A1
Pudsey MB	A
Pulborough	A1
Radnorshire, County of	‡A1
Ramsgate	A1
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A1
Rochdale	A
Rochester	A
Ross-on-Wye	A1
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A1
St. Albans	A
St. Austell	A1
St. Helens	A
St. Neots	A1
Salisbury City	A1
Salisbury Plain	A1
Sandy	A1
Sawbridgeworth	A
Saxmundham	A1
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A1
Selby UD	A
Sevenoaks	A
Shaftesbury	A1
Sheerness	A1
Sheffield MB	A
Shepton Mallet	A1
Sherborne	A1
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A1
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A
Smethwick CB	†A
Snettisham	A1
Solihull UD	A
Somerset, County of	‡A1
Southampton and Eastleigh	A
Southend-on-Sea Dist	A
Southport	A
South Shields CB	A
Southwold	A1
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A1
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A1
Tavistock	A1
Tenterden	A1
Teignmouth	A1
Tewkesbury	A1
Thames Haven	A
Thetford	A1
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area	A
„ North of to Billericay	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Tring	A1
Trowbridge	A1
Truro	A1
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A1
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Walsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A1
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A1
Wells (Norfolk)	A1
Wells (Somerset)	A1
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A1
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A1
Wickford	A
Widnes	A
Wigan	A
Wigton	A1
Wilmslow	A
Wilts. County of	‡A1
Wimborne	A1
Wincanton	A1
Winchester	A1
Windermere	A1
Wisbech	A1
Witham	A1
Withernsea UD	A1
Woking	A1
Wokingham	A1
Wolverhampton CB	A
Wolverton District	A1
Woodbridge	A1
Woodhall Spa UD	A1
Woodstock	A1
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A1
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A1
Yate	A1
Yeovil Borough	A1
York CB	A
Ystalyfera	A

*For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 7½d.; Labourers, 4s. 1d. In the case of London the rate beyond the 12-mile radius is: Craftsmen, 4s. 7d.; Labourers, 4s. 0½d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 7½d. per hour. Women engaged on work other than craft processes, 3s. 3½d. per hour.

For Building Trade Wages in Scotland see page 137

NEWS IN BRIEF

Employment Figures, May

THE number of workers employed in the building and contracting industry at the end of May was 1,509,000, an increase of 1,000 over the previous month's total and a decrease of 27,000 from the corresponding month last year. These figures are shown in employment lists issued by the Ministry of Labour and National Service.

New Company Formed

Millspaugh, Limited, and George Wimpey & Co., Limited, have decided to form a jointly owned subsidiary, to be known as Millspaugh/Wimpey, Limited. The purpose of the new company is to submit offers for the designing, supply and building throughout the world of complete pulp and paper-making plants.

Finance Proposals

Proposals for changes in local government finance were presented in a White Paper (Cmd. 200, HMSO price 1s.) to Parliament by Mr. Henry Brooke, Minister of Housing and Local Government, on July 10. A main aim of the proposals is 'to increase the independence of local authorities in the raising and spending of their money so far as it is practicable to do so.' This is to be done by strengthening the rating system and by radically recasting the system of Exchequer grants, and in particular reducing the dependence of local government on percentage grants.

Steel Production Figures

Steel production in June fell to a weekly rate of 418,700 tons compared with 443,200 tons in May and 379,700 tons in June of last year. Production for the first half of the year was 11.14 million tons compared with 10.6 million tons for the same period last year, an increase of 5.1 per cent. Pig iron production during the first half of the year was 7.1 million tons compared with 6.6 million tons last year, an increase of 7.2 per cent.

Stairtread Competition Award

In the competition organised by Ferodo, Ltd., for the front cover of a new Stairtread publication, the awards were as follows: First, £100, E. F. H. Foster; second, £50, P. J. Dixon, MSIA; third, £25, G. Moore. The assessors were Alec Davis, general manager of Spearhead Services, Ltd., E. N. Burleton, MIPA, director of Armstrong-Warden, Ltd., and R. L. S. Harrison, JP, managing director of Stephen Austin & Sons, Ltd. There were 461 entries. It is understood that Ferodo, Ltd., are unlikely to make further use of any of the premiated designs.

Industrial Design Leaflets

The Council of Industrial Design recently invited a panel of the Royal Designers for Industry to select the 12 outstanding products which had been shown in the Design Centre during its first year. To provide a permanent record of the selection, the COID has produced an illustrated leaflet, showing the 12 chosen designs, together with the comments of the judging panel. The leaflets (price 3d.) can be obtained from the COID, 28 Haymarket, SW1. Reduced rates are offered for bulk purchases as it is thought that schools, colleges and organisations which hold classes in design appreciation may wish to take advantage of these.

Dearer Bricks to be Used

Because of the delay in the delivery of bricks for the building of houses in Faringdon, Oxon., the rural district council has decided to accept a recommendation from its water, health and housing committee that more expensive bricks be used for six houses to be erected at Bourton. The committee has recommended Dapple Light brick. The surveyor considered that this would be more suitable since it would blend with the stone used in the village houses. The committee has informed the council that the extra cost per house would be £8-£9.

Clean Air Council Meeting

The Clean Air Council held its first meeting on July 11 under the chairmanship of the Minister of Housing and Local Government, Mr. Henry Brooke. The first provisions of the Clean Air Act came into force at the beginning of this year, so that the Council has been able to start its task of reviewing progress under the Act in England and Wales from the opening stages. The Government propose that the second appointed day bringing into force the remaining provisions of the Act should be in the first half of 1958.

Timber Preservation Booklet

A new booklet, 'Timber Preservation,' published jointly by the British Wood Preserving Association and The Timber Development Association, has just been issued. Containing a complete list of proprietary wood preservatives and a table of preservative treatments for specific uses, it provides a comprehensive source of reference to the whole subject of timber preservation.

It has been prepared with the help and guidance of the Forest Products Research Laboratory and a number of architects, builders, chemists and engineers both in this country and abroad. Copies are obtainable without charge and post free from the BWPA, 6, Southampton-place, WC1.

Welfare Council Training Courses

Those wishing to become matrons and assistant matrons of Old People's Homes are invited to join the training courses organised regularly by the National Old People's Welfare Council. It is felt that these may provide an opening to a worthwhile job for many. There are over 1,400 homes provided by both voluntary organisations and statutory authorities and the demand for good staff is constant.

Applicants need not necessarily have special qualifications provided they are genuinely interested in old people, but those with some practical knowledge of nursing and housekeeping will be particularly suitable. The next course begins on September 9 and there will be another one in the early spring. Each course last 14 weeks.

Full information and application forms may be obtained from the Secretary, National Old People's Welfare Council, 26, Bedford-square, WC1.

NATURAL ASPHALT

BS 1162 : 1957—Mastic Asphalt for Roofing ; Natural Rock Asphalt Aggregate

THE issue by the British Standards Institution of the revised BS for this material necessitates (according to a statement issued by the National Asphalte Mine-Owners' and Manufacturers' Council) consequential amendments in the Council's booklets 'Specifications and Safeguards' and 'Application of Mastic Asphalte—Roofing.'

When these two booklets were published at the end of 1956, it was anticipated that the BS would be dated 1956, but it was later found impracticable to issue it until June, 1957, so that the reference in the 'Specifications and Safeguards' booklet to BS1162: 1956 needs amendment to BS1162: 1957. In both booklets the Council recommends users to specify from the BS the type of asphaltic cement, namely, table 2, column 2. This recommendation was based on the assumption that the revised BS would give the asphaltic cement under table 2 as in the previous edition. The BSI, however, decided to bring BS1162 into line with the other Standards for mastic asphalt and the asphaltic cement table is now designated 1. The Council's recommendation should accordingly be changed to table 1, column 2.

The BSI will be publishing, within the next twelve months, up-to-date revisions of the other two BS for natural rock asphalt, namely, BS1410 flooring, and BS1418 tanking and damp-proof coursing, so that this material will then be covered by British Standards taking into account the considerable progress in the industry since 1947.

BUILDING PLANT

A Manchester Exhibition

THE 1957 Building Plant Exhibition organised by the Ministry of Works took place this week at Heaton Park, Manchester. The Minister of Works, the Rt. Hon. Hugh Molson, MP, formally opened the exhibition on Monday in the presence of the Lord Mayor of Manchester, Alderman Leslie M. Lever, MP. Mr. D. F. Mann, Regional Director, MoW, was in the chair.

The Minister produced during his speech some interesting figures to indicate the size and importance of the building industry. He said that half the nation's savings, over £2,000m. each year, are invested in buildings, some £50m. coming from the Ministry. He spoke of the load placed on the industry by the power stations, atomic plants and new towns. He then spoke on the possibility of the industry pricing itself out of a job.

The Minister referred to the Crown building now being erected in Manchester, which he intended to visit that very afternoon, as an example of a fixed-price contract, a method of contract which the Ministry is recommending for jobs that can be built within two years.

The first day of the exhibition started well for the exhibitors. Several sales were made, and at 4.15 p.m. the large tower crane by Abelson and Co. was sold to William Thornton's for a figure in the region of £5,000. The exhibition is slightly smaller numerically this year but occupies a record stand area of 175,000 sq. ft., apart from the demonstration area for large pieces of equipment. A report will be published in our next issue.

OVERSEAS BUILDING

From Our Own Correspondents

ARGENTINA.—The Hydroelectric Commission plan recommends urgent completion of works in hand and of hydroelectric stations already approved for this year; the building of a hydroelectric station at 'El Chocon' on the River Limay (Rio Negro-Neuquen); the completion, in conjunction with the Uruguayan Government, of a definite scheme for the Salto Grande; the study, in conjunction with the Paraguayan Government, of harnessing the Saltos de Ipipe (the rapids in the upper Parana River); and the preparation by the Water and Electric Power Board of a hydroelectric scheme for the middle Parana River. . . . The State Oilfield (YPF) received 15 bids for their development project. Of these all except two tendered for a part only of the work or materials. Of the two, the International Contractors and Suppliers Association (ISCA—the European-American-Argentine Consortium) offered a 'package deal' to execute the entire project together with the refinery extensions in Mendoza and Buenos Aires and the construction of lubricating oil and storage plants which though not included in the present call for tenders do form part of the petroleum development plan as a whole. The total cost amounts to nearly 270,000,000 US dollars.

KENYA.—Alderman I. Sowen, addressing members of the Nairobi City Council on July 2, on the termination of his office as Mayor, stated that projects planned for the city this year should reach a total expenditure of £8m. In housing, as part of the six-year capital programme up to 1961, £3,158,000 was allocated.

NEW ZEALAND.—Expenditure on public buildings is being stepped up from £2,700,000 to £3,500,000 this year. Construction is widespread, forming part of an overall plan the Government is following to meet requirements arising from expansion and development. The comprehensive nature of the building programme was outlined by the Minister of Works, Mr. W. S. Goosman, recently. Wellington was to have a new departmental building costing £1m., he said. Land was being acquired for a nurses' postgraduate school and a building costing £160,000 was to be erected. A new wing at St. Helens Hospital costing £90,000 is to be started. The new Dominion Laboratory, at a cost of £110,000, is to be completed next year while £85,000 is required for the beginnning of the soil bureau at Taita. . . . According to Mr. Goosman, land is being acquired for the site of a new police barracks to cost £200,000. Buildings required by the Health Department at Levin and Porirua will cost a total of £733,000 of which £150,000 will be spent this year. In Nelson, the acquisition of a site and the building of a courthouse will cost £170,000. Maternity hospitals, homes for nurses, Government department buildings and many other classes of buildings figure in the programme being carried out. . . . A railway link from Nelson to the South Island main trunk system, through the Buller Gorge, will cost nearly £11m., according to a recent estimate given by the Ministry of Works in a special report to the Prime Minister. This is nearly £3m. more than the estimated cost of using the northern route at present being surveyed between Nelson and Blenheim. . . . Auckland's Majestic Theatre, in Queen-street, a cinema since 1929, is to be closed and converted into a block of offices and shops. The project is expected to cost about £500,000. . . . A three-year programme of expansion and improvement for the Tourist Hotel Corporation has been announced by the Minister of Tourist and Health Resorts, Mr. D. J. Eyre. The main features are new accommodation wings for Milford Hotel and the Hermitage; 64 more rooms for Eichardt's Hotel, Queenstown; improvement to the huts on Milford Tract; extensive renovations for the Chateau Tongariro. . . . A scheme to improve housing in the Cook Islands has been announced. The scheme follows a remit by the Cook Islands Legislative Council, which asked for Government help in housing improvement. . . . British Thomson-Houston have been awarded the contract for the supply of an additional low-pressure turbo-alternator for the Wairakei geothermal station.

CONTRACTS OPEN

***Australia.**—Information has been received in the Export Services Branch that the Contracts Division of the Snowy Mountains Authority are expected to advertise calls for tender, both in Australia and the U.K., during the next few months for the Tantangara Reservoir-Eucumbene diversion works and T.2 Tunnel and Power Station equipment and associated civil engineering works. Drawings and specifications for the Tooma Reservoir and the Tooma-Tumut Tunnel are understood to be completed, but no decision has yet been reached when calls for tender for the work involved will be advertised. Ref. ESB/24058/55 in any correspondence with the branch about this circular (Tel.: Chancery 4411, ext. 362).

* From the Board of Trade Special Register Information Service. The telephone number and extension at the end of the paragraphs relate to the department of the Export Service Branch, Lacon House, Theobalds-road, WC1, where further information can be obtained.

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Variations from 1914 to date

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CEMENT

Commonwealth Demands

A PRELIMINARY agreement which will make it possible for cement to be manufactured in *Ghana* has been signed by the Government and a British firm of cement manufacturers. Reporting this, Barclays Bank DCO Overseas Review says that as a result of the agreement a clinker factory which will produce the cement is to be built within the next two years. It will probably be located at Takoradi, the country's principal port.

From *Jamaica* the Bank reports that consumption of cement has doubled in the last four years, and adds that it shows no signs of slackening. The Caribbean Cement Factory now being enlarged to double its present size, should be completed in 1958, but it is possible, comments the report, that the demand for cement by 1959-60 may again outstrip the production, necessitating further expansions to the factory.

In *Southern Rhodesia*, it is reported that the consumption of cement in Salisbury, the capital, has almost doubled in the past 15 months, and increasing demand might necessitate the import of further supplies.

An acute shortage of cement is reported from *Sudan*, and the available stocks are not available where they are most needed owing to a shortage of rolling stock. As a result, Government building projects in the Equatoria Province are held up for lack of materials.

COMMONWEALTH BUILDING NEWS

IN its July Overseas Review, Barclays Bank DCO reports a number of interesting developments in the building industries in Africa:—

South Africa.—The value of building plans passed in the Union's nine principal urban areas during the first four months of this year amounted to £17.4 m., which was approximately £1 m. lower than in the corresponding period last year. The Bank adds, however, that a closer examination of the figures reveals that the downward trend may have been arrested, at least temporarily.

Federation of Rhodesia and Nyasaland.—Rhodesia Railways plan to remodel Bulawayo Station in the next four years at a cost of £265,500. There will eventually be five straight platforms each nearly 1,700 ft. long. Building plans totalling £440,285 were passed in Salisbury during May, and included £258,793 for residential and £138,982 for commercial buildings. During the same month plans totalling £264,749 were passed in Bulawayo and these included £84,769 for 19 new houses and £102,000 for a new factory and alterations for a firm of paper manufacturers. From the same area it is reported that a start has been made on the first portion of the Cranborne low cost housing scheme, where a firm of contractors are to build the first 360 houses for the Southern Rhodesian Government. A building rate of 15 houses a month is anticipated.

From Northern Rhodesia it is reported that the Government is to spend approximately £120,000 on improvements to the airport and airport buildings at Ndola. Totals of building plans passed during May

included £204,580 at Ndola, £333,176 at Lusaka, £66,720 at Mufulira, £29,000 at Chingola, and £184,806 at Kitwe. During 1956, a total of £2,658,399 worth of building plans were passed by the Kitwe Municipality, and in the past year 555 African houses were completed there. Work is already advanced on a further 1,260 at a cost of £435,000.

Jamaica.—Expansion in Jamaican hotel accommodation continues to make rapid strides. On the north coast in the Montego Bay area, in addition to increasing the existing accommodation, there are several long-term development programmes in hand for the erection of luxury hotels, including the building of a 360-room convention-type hotel. Other hotels are in the course of erection at Ocho Rios and Boscobel, near Oracabessa. Three of the hotels at present under construction will be ready for the 1957-58 winter season. Further along the north coast, in the Port Antonio district, plans have been announced for several new hotels at Frenchman's Cove, Boston Beach, Pera and Prospect.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Nixon & Boardman, Ltd. (582894.) Regd. April 26. Moor-rd. Works, Moor-rd., Orrell, nr. Wigan. Bldrs. and contrs. Nom. cap.: £20,000. Dir.: H. Nixon.

Davis & Son (Northwood), Ltd. (582720.) Regd. April 24. 5, Chester-rd., Northwood, Middx. Bldrs. Nom. cap.: £3,000. Dir.: H. S. Davis.

Ridgeway Developments, Ltd. (582769.) Regd. April 24. 54b, Evesham-st., Redditch, Worcs. Bldrs. and contrs. Nom. cap.: £1,000. Dir.: J. K. Cross, 81, Oakenshaw-rd., Redditch.

Robinson & Gimbert, Ltd. (583044.) Regd. April 30. The Row, Sutton, nr. Ely, Cambs. Bldrs. and contrs. Nom. cap.: £15,000. Permt. dir.: F. W. Robinson.

T. L. T. Construction Co., Ltd. (583051.) Regd. April 30. Bldrs. Nom. cap.: £2,000. Dir.: J. D. Lidyard, Orchard Close, Sweetbriar-lane, Exeter.

Neata Constructions, Ltd. (583081.) Regd. April 30. 87, Wardour-st., W1. Bldrs. Nom. cap.: £2,000. Dir.: B. Glassman.

John Kettlewell, Ltd. (583123.) Regd. April 30. Holgate-lane, Boston Spa., Yorks. Bldrs. Nom. cap.: £1,000. Dir.: J. R. Kettlewell.

W. T. Emerick & Sons, Ltd. (583151.) Regd. May 1. 91, Mildmay-grove, N1. Bldrs. Nom. cap.: £100. Dir.: W. T. Emerick.

Bendall Developments, Ltd. (583154.) Regd. May 1. Friary Hse., St. Michael's-rd., Winchester, Hants. Bldrs. Nom. cap.: £5,000. Dir.: H. Bendall.

A. & B. Stevenson, Ltd. (583179.) Regd. May 1. 15 & 17, Haughs-rd., Quarmby, Huddersfield. Bldrs. Nom. cap.: £4,000. Dir.: A. Stevenson.

J. & E. Sagar, Ltd. (583197.) Regd. May 1. Whitewell Sawmills, Waterfoot, Lancs. Joiners, bldrs. Nom. cap.: £100. Dir.: J. Sagar.

Prestatyn Precast Concrete Co., Ltd. (583203.) Regd. May 1. Off Marine-rd. East, Prestatyn, Flints. Bldrs., contrs., etc. Nom. cap.: £5,000. Permt. dir.: W. E. Roberts.

Dulwich Construction Co., Ltd. (583255.) Regd. May 2. 36, Westminster Palace-gdns., SW1. Bldg. and civ. eng. contrs. Nom. cap.: £1,000. H. T. Shearing, 192, Burnt Ash Hill, SE12, signs as director.

W. F. Taylor (Builders), Ltd. (583273.) Regd. May 2. 96/8, Holdenhurst-rd., Bournemouth. Nom. cap.: £1,000. Dir.: W. F. Taylor.

MacIntosh & Mizen, Ltd. (583289.) Regd. May 2. 115, Parkstone-rd., Poole, Dorset. Bldrs., etc. Nom. cap.: £3,000. Dir.: D. F. MacIntosh.

Practical Homes, Ltd. (583292.) Regd. May 2. Bldrs. and contrs. Nom. cap.: £2,500. Permt. dir.: J. T. Dalton, 123, Ealing Village, Ealing, W5.

L. B. Q. Construction Co., Ltd. (583317.) Regd. May 3. Nom cap.: £5,000. Bldrs. Sub.: G. A. Crook, 51, Caversham-ave., N13 (co. dir.).

Beeson Bros. (Builders), Ltd. (583339.) Regd. May 3. 1, Tidmarsh-rd., Tidmarsh, Berks. Nom. cap.: £5,000. Dir.: E. F. H. Beeson.

F. C. Hubbard, Ltd. (583385.) Regd. May 6. 154, Edensor-gdns., Chiswick, W4. Bldrs. Nom. cap.: £100. Dir.: F. C. Hubbard.

B. South, Ltd. (583436.) Regd. May 6. 43, Ravenor Park-rd., Greenford, Middx. Bldrs. Nom. cap.: £10,000. Dir.: B. South.

The
SCOTTISH BUILDER

Rents of Council Houses

THE average rent of a permanent council house in Scotland last November (when rents still included owner's rates) was 10s. 3½d. per week or £26 15s. per year. This represented an increase of under 2d. a week over the previous year's average, and 1s. 8½d. a week compared with 1949, the first post-war year for which rent returns were made.

For council houses built since the war the average rent last November was 11s. 9d. per week or £30 11s. 3d. per year, an increase of under 1d. a week on the previous year and, compared with 1949, an increase weekly of under 11d. Since 1949, the average rent of council houses built before the war had increased from about 8s. 1½d. a week to 9s. a week.

These figures, which exclude occupier's rates and rebates, are contained in a White Paper, 'Rents of Houses owned by Local Authorities in Scotland, 1956,' published on July 11 (HMSO, price 2s.) by the Department of Health for Scotland. As in previous Returns the rent figures include owner's rates. In view of the changed rating position as from May, 1957, future returns will, however, show the net rent, entirely exclusive of any rating element. The White Paper shows considerable variations between the average rents charged.

Among small burghs the average rent for post-war houses varied from £48 6s. 7d. in Lochgilphead to £18 19s. 5d. in Lerwick. In counties, the average rent of post-war houses varied from £40 in Nairn to £19 8s. 4d. in Sterling. In the whole of Scotland only 1,947 or 0.39 per cent. of all the houses were covered by rent rebates from local authorities. Council houses are not subject to the Rent Restrictions Acts. The local authority fixes the rent and alone has the power to make changes.

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from May 27, 1957. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen 4s. 6d.; Labourers 3s. 11½d.

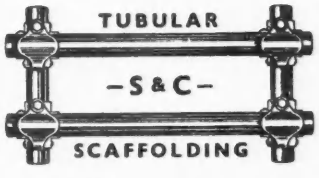
For apprentices, the rates are:

Year.	*Percentage of Craftsman's rate.*	*For week of 44 hours.* s.	d.
1st	25	49	6
2nd	33½	66	0
3rd	50	99	0
4th	66½	132	0
5th	75	148	6

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	11½
Operatives on labouring operations (at end of probationary period)	3	5½

Having Secured the Contract— what about the Steel Scaffolding?



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NEW BUILDINGS

Glasgow.—John Lawrence (Glasgow), Ltd., Halleydown-dr. Erection of 18 three-apt., 2-storey houses terraced in three blocks; this replaces earlier planning permission for semi-detached housing for which planning approval was given.

Glasgow.—Erection of block of offices in West Nile-st. Planning permission granted subject to car parking being provided for 16 cars. A: Chaucer Estates, Ltd., 48/54, West Nile-st.

Glasgow.—Extension to Possil P.O. Exchange at 68/90, Barloch-st., for Ministry of Works. A: A. C. Shallis (A), M o W, Broomhouse-dr., Edinburgh, 11.

Glasgow.—Education Department Senior school and janitor's house, Fetlar-dr., Simshill; prim. sch., Newhills-rd., Wellhouse. Glasgow Corporation Education Dept., Bath-st.

North of Scotland Hydro Electric Board.—Construction, completion and maintenance of road 8¼ miles long between a point 15 miles from Invermoriston on the existing road (A887) from Invermoriston to Cluanie Inn and the 'Daingean' Bridge, 5 miles from Invergarry to Tomdoun, including four reinforced concrete bridges, culverts and ancillary works. Tender documents and drawings from Sir William Halcrow and Ptnrs., Stanhope House, 47, Park-la., London, W. Dep. £5 5s.

Orkney CC.—(1) Central School, Stronsay; (2) Pierowall School, Westray. All trades as two separate contracts, alterations and additions. Tender forms, etc., from County A. Mounthoolie-la., Kirkwall.

West Lothian CC.—Alterations and improvements to 13 houses at Garibaldi-row, Fauldhouse. Several works. Applications to John Calder, County Clerk, County-bldgs., Linlithgow.

The Builder

FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

JULY 24.

***†Cheltenham BC.**—26 houses, 4 bungalows and 24 flats together with outbuildings and external services at Swindon-rd. development, Malvern-st., scheme. BE. Dep. £3 3s.

***†Coventry Corpn.**—Three classroom block at Alderman Harris prim. sch., Charter-ave. City A and Planning Officer. Dep. £2 2s. Tenders by August 26.

JULY 25.

***†Bristol Corpn.**—95 dwellings at Withywood. City A. Dep. £2 2s.

***†East Suffolk CC.**—Extensions to Felixstowe S.M. School. County A., County Hall, Ipswich.

***Surrey CC.**—Extension to Guildford County Grammar Girls' Sch. County A.

JULY 26.

***†Bath City C.**—12 one-bedroom flats and 2 three-bedroom flats at Bradford-rd., estate, Foxhill. City Planning Officer and Architect, 7, North Parade-bldgs. Dep. £2 2s. Tenders by August 30.

***†Birmingham City C.**—Erection of 12 flats at Antrobus-rd., Handsworth, contract 587. City A. Dep. £2 2s. Tenders by August 26.

Blackburn CB.—Supply and erection of timber sectional building for reading room at Central Public Library. BE. Dep. £2 2s.

***†Essex CC.**—Extensions to George Mitchell sec. sch., Leyton. BE&S.

***†Surrey CC.**—Extensions to Wallington County Grammar Sch. for Boys. County A.

***†Watford BC.**—Conversion of 'Merryfields,' Ashby-rd., into flats. BE&S. Dep. £2 2s. Tenders by Aug. 19.

***†Woodstock BC.**—Restoration works at Woodstock Town Hall. TC.

JULY 27.

***†Essex CC.**—Enclosing corridors at Chelmsford Houlsham CP and Infants' Schools. County A.

JULY 29.

Kenilworth UDC.—14 houses and 10 two-storey flats at Dalehouse-la. S.

Port Talbot BC.—Scheme A: 50 houses and scheme B: 50 houses, at 'Fox' site, Sandfields. Either or both. Boro' E. Dep. £2 2s.

***†West Riding CC.**—Schools meals kitchen and alterations to existing premises at Harrogate Bilton Endowed Controlled Sch. County A. Tenders by August 12.

JULY 31.

***†Bath City C.**—12 bed-sitting room flats and six maisonettes over at Snow Hill. Snailum, Huggins & Le Fevre, architects, 18, Brock-st., Bath. Dep. £3 3s.

***Bootle CB.**—Plastering, roof tiling and thermoplastic floor tiling to scheme 36 (e) 71 dwellings at Park-la., estate, Netherton. BS.

Colne BC.—12 houses and 18 flats at Venables-ave. and Oak-st. Boro' S. Dep. £2 2s.

***†Herefordshire CC.**—(1) Two-form entry sec. sch., Bromyard; (2) Adaptations to existing building to form two-form entry sec. sch., Canon Frome; (3) Hall of Residence at Training College, Hereford; (4) Two-form entry sec. sch., Ledbury. County A. Dep. £5 5s. each project.

AUGUST 1.

***†Portsmouth City C.**—(a) Ambulance station, Eastern-rd.; (b) 150 houses, Park House Farm, Leigh Park. City A, 1, Western-parade. Dep. £1 each contract.

AUGUST 6.

***Wrexham BC.**—(a) Block of shops and flats at Queen's Park (fixed price tender); (b) Supply of wrought iron gates (Acton). BE&S, 31, Chester-st.

AUGUST 10.

***Southborough UDC.**—Pair of flats at Nos. 13 and 15, High Brooms-rd. Howes & Jackman, 1, Verulam-bldgs., Gray's Inn, London, WC1. Dep. £2 2s.

AUGUST 12.

***Bucks CC.**—Improvements and additions to sanitary accommodation at Wolverton C. Sch.; improvements to sanitary offices at Winslow C. of E. Sch. County A.

AUGUST 16.

***Huntingdonshire CC.**—Erection of Fire Station at Thrapston-rd., Kimbolton. County A. Dep. £2 2s.

AUGUST 19.

Birmingham CC.—One eight-storey block of flats (r.c. frame), four four-storey blocks of maisonettes and four houses at Beach-rd., Sparkhill. City A. Dep. £2 2s.

AUGUST 22.

***Southend-on-Sea CB.**—Erection of Cliffs Pavilion, Station-rd., Westcliff-on-Sea. Boro' A. Dep. £2.

AUGUST 23.

***Sunderland CB.**—86 dwellings at Lawrence-st., clearance area. Boro' A. Dep. £2 2s.

AUGUST 27.

***Ilford BC.**—Erection of 21 flats at Madras-rd. BE. Dep. £3 3s

AUGUST 30.

***Walthamstow BC.**—57 dwellings at St. Andrew's-rd./Oatland-rise. Boro' A. E&S. Dep. £2 2s.

September 2.

***Brownhills UDC.**—Erection of 8 houses, Commonside, Wallsall-rd.; 4 bungalows, Hawthorn-rd., Shelfield. E&S, Coombe House. Dep. £2 2s.

***Wood Green BC.**—Public conveniences at Noel Park-rd. BE. Dep. £1 1s.

SEPTEMBER 9.

***Aldershot BC.**—Gentlemen's conveniences at Princes-gdns. BE&S. Dep. £2 2s.

NO DATE.

***Bromley Group Hospital Management Committee.**—Applications invited from contractors to be placed on list for building, civil, electrical and mechanical engineering works. Group E., Farnborough Hospital, Farnborough, Kent.

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Gosport BC.—Public convenience at Lee-on-the-Solent. BE. Dep. £2 2s.

***North East Metropolitan Regional Hospital Board.**—Three 40-bed units and one 50-bed unit at South Ockendon Hospital. Ref. No. 26E/46. Fixed price tender. Secretary, 11a, Portland-pl., London, W1.

PAINTING, MATERIALS, ETC.

JULY 31.

West Riding of Yorkshire CC.—Road materials. County E&S.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

JULY 26.

Reading CBC.—1,870 yd. of 27 in. and 900 yd. of 42 in. FW relief sewer and 340 yd. 18 in. to 21 in. FW sewer in r.c. tubes, 1,140 yd. 12 in. FW pressure main in spun-iron pipes, two sewage pumping stations, ancillary manhole and other chambers and pipework. Howard Humphreys & Sons, constg. engrs., Victoria Station-hse., Victoria-st., SW1. Dep. £5 5s.

AUGUST 1.

Sevenoaks RDC.—Reconstruction of sewage disposal works at Leigh. E&S. Dep. £2 2s.

AUGUST 2.

Kidderminster BC.—12,000 sq. yd. of soil stabilised paving with hot asphalte binder and 2,000 lin. yd. of 6 in., 9 in. and 12 in. foul and SW sewers, etc., at proposed wholesale produce and cattle market. Boro' E&S. Dep. £3 3s.

AUGUST 6.

Bishop's Castle.—Extensions to sewage disposal works. Willcox, Raikes & Marshall, engrs., 33, Gt. Charles-st., Birmingham 3. Dep. £3 3s.

NO DATE.

North of Scotland Hydro-Electric Board.—New road 8¼ miles long between point 15 miles from Invermoriston on existing road, A.887, and existing Daingean Bridge, 5 miles from Invergarry on road A.87, including four r.c. bridges, culverts and ancillary works. Sir William Halcrow & Ptnrs., engrs., 47, Park-la., W1. Dep. £5 5s.

GENERAL BUILDING WORK (LONDON)

Camberwell.—SITE ACQUISITION.—The LCC Housing Com. proposes to acquire for housing purposes three sites, nearly an acre in extent, at Friern-rd., Dulwich, SE22, which it is proposed to redevelop in conjunction with adjoining land owned by the Council and let to Camberwell MBC for temporary dwellings on leases which will expire in December, 1957. Part of the land will be required for educational purposes and part for road widening; on the rest, about 6.83 acres, 130 dwellings can be erected.

Deptford.—SITE ACQUISITION.—The LCC Housing Com. proposes to acquire, for housing purposes, a site in Giffin-st., and another in Reginald-rd., SE8, totalling 0.6 acre which, with land already in the Council's ownership, will provide development areas totalling 1.5 acres, on which 44 dwellings can be erected.

Ealing.—SCHOOL.—The Middlesex Education Com. recommends approval of plans for the erection of Ealing, Northolt Park (Petts Hill) infants' school for 240 children, at an estimated cost of £47,570.

Islington.—MAISONETTES AND GARAGES.—The LCC Housing Com. has approved proposals for developing a site of 1.6 acres at Grosvenor-ave., N5, as an extension of the Council's Highbury estate, by a four-storey block of 42 maisonettes, each with a garden, a playground, 25 tenants' stores, and five garages. 13 garages will also be provided on the existing estate. The estimated cost of the scheme is £128,700.

Islington.—SCHOOL EXTENSIONS.—The LCC Schools Planning Sub-Com. has approved a scheme for the erection of new accommodation and the adaptation of existing buildings at Archway county secondary school and Duncombe and Whittington county primary schools to form a new county secondary school. An assembly/dining hall, kitchen, two gymnasia and changing rooms, and administrative offices will be built at the Nicholay-rd. site. The total estimated cost of the whole scheme is £304,395.

Shoreditch.—SITE ACQUISITION.—The LCC Housing Com. proposes to acquire by compulsory purchase areas totalling 2.53 acres in extent and adjoining lands of 1.88 acres at Ipswich-rd., E8. It is estimated that 282 dwellings can be erected on the lands.

Shoreditch.—SITE ACQUISITION.—The LCC Housing Com. proposes to acquire by compulsory purchase two sites, together 0.85 acre in extent, at Angrave-st., E8, for development, in conjunction with adjoining vacant land owned by the Council, as an extension of the Haggerston estate. The total area available will be 1.39 acres, on which about 53 new dwellings can be built.

Stepney.—FLATS, MAISONETTES AND GARAGES.—The LCC Housing Com. has approved a scheme for the development of a site of three acres, with a third of an acre for amenity open space, at Treby-st., E3, by an eleven-storey point block of flats, four four-storey blocks of maisonettes and a two-storey block of 12 flats for old people. The point block will be served by two lifts and electric floor heating will be provided in the halls and living rooms. There will be 120 dwellings in all with 53 tenants' stores and eight garages. The estimated cost of the scheme is £325,800.

Westminster.—COLLEGE OF COMMERCE: ADAPTATIONS.—The Further Education Sub-Com. recommends acceptance of the offer of the lessors of Francis-hse. and Greencoat-hse., Francis-st., SW1, to carry out, at the Council's expense, works of adaptation to the two buildings, estimated to cost £23,481, to provide additional accommodation for the Westminster College of Commerce.

Woolwich.—TRAINING COLLEGE.—The Minister of Education has approved an allocation, in 1958-59 programme, of £70,000 for additional accommodation at Avery Hill Training College and the Further Education Sub-Com. has authorised the preparation of a scheme by a firm of architects in private practice.

(PROVINCIAL)

Alfreton.—UDC proposes erection of 8 bungalows and 60 houses at South Spire site, Somercotes.

Ashton-under-Lyne.—BC approved outline application to develop site by rebuilding store and/or retail shops at 209/217, Stamford-st. and properties fronting Mill-la. for Arndale Property Trust, Ltd.

Basildon.—LCC Children's Com. proposes to build six family homes, each for seven children and a house for relief staff, on sites to be leased from DC.

Billinge and Winstanley.—UDC proposes 24 dwellings at School Brow site: A: J. M. Wilson & Son (A), Midland Bank-buildings, St. Helens.

Billingham-on-Tees.—Ravenseft Properties, Ltd., to erect 12 shops, showrooms and storerooms at Town-sq. A: Messrs. Lionel H. Fewster & Ptnrs., 22, Conduit-st., W1.

Birkenhead.—TC propose erection of new branch library at Laird-st.

Birmingham.—EC appointed Wood, & Kendrick and Williams (F/F), 57, Colmore, Row, Birmingham, 3, as A for various improvements at Prince Albert prim. sch.; S. N. Cooke & Ptnrs. (F/F), 34, Harborne-rd., Birmingham, as A for extensions to Brooklyn technical college; and Norrish & Stainton (A), 13, Cambridge-cres., Birmingham, as A for extensions and adaptations at Handsworth technical college.

Blackburn.—Mecca Co., Ltd., propose purchase of Olmypia cinema and erection of new dance hall after demolition.

Blyth.—TC plans 22 maisonettes at Delaval-terr., 46 dwellings at Phoenix-st. redevelopment area and 80 houses at Cowpen-rd. Boro' E: D. W. Foster.

Blyth.—Pithead baths proposed at Crofton Mill Pit: project in planning stage. NCB A Dept., Whitley-rd., Longbenton.

Bolton.—TC approved plans for new classroom block at Johnson Fold CP school. Approved plans: 40 bungalows off Kermoor-avenue for R. J. Tyson, Ltd., Bolton; 25 bungalows at Millstone-rd. and Ina-avenue for G. H. Pearse & Son, Ltd., Bolton.

Bristol.—HC approved plans for 5-storey block of 15 flats and maisonettes at corner of Kingsdown-parade and Fremantle-rd. City A: J. Nelson Meredith (F), Council-hse., Bristol.

Bury.—TC proposes erection of further 70 dwellings on Littlewood site.

Buxton.—BC proposes erection of further 98 dwellings on Victoria Park No. 3 site.

Carlisle.—Johnston & Wright (L/A/A), Castle-st., Carlisle, are A for block of four shops and flat at Richmond-hse., Wigton-rd., for J. Hind.—G. W. Danson, 54, Lowther-st., Carlisle, has prepared plans for warehouse at Durranhill industrial estate for J. A. Ruddick.—Warehouse and offices proposed at corner of Lancaster-st. and King-st. for Ridley (Wholesale Chemist), Ltd. A: N. M. Phillips (A), 43, Oxford-st., Workington. Edwin M. Lawson (A), Barras Buildings, Barras Bridge, Newcastle-on-Tyne, is A for converting billiards hall, shop and flat at Botchergate into dance hall for Essoldo Circuit (Control), Ltd.

Chelmsford. — North-East Metropolitan Regional Hospital Board approved scheme for enclosure of balconies at Broomfield hospital, £23,000. A to Board: W. G. Plant (A), 3, Queen Anne-st., W1.

Chester.—TC proposes erection of 16 one-bedroomed bungalows, 29 two-bedroomed houses, 79 three-bedroomed houses and 4 four-bedroomed houses at Newton Hall estate. To sell site at Huntington to Cheshire CC for new primary school.—Bents Brewery Co., Ltd., propose erection of new licensed premises at Newton Hall estate.

Chesterfield.—North-East Derbyshire Joint Crematorium Committee received Ministry approval for new crematorium at Brimington-rd.

Chesterfield.—RDC to erect 52 dwellings at Heath and 41 at Tupton.

Coventry.—J. E. C. Powell appointed QS for municipal dwellings at Monk's Park housing estate by direct labour.

Coventry.—HC approved plans for six shops and maisonettes to complete Stage I of Willenhall Wood development. City A: A. G. Ling (F), MTPI.

Crosby, Lancs.—Governors of Merchant Taylors' school for girls propose extensions, £30,000 est.

Darlington.—£20,000 is being raised for extensions to Darlington Training College. O. M Stanton, Principal.

Darlington.—Boro' EC has received approval for conversion of St. Mary's RC grammar sch. to three-form entry in 1958-59 programme.

Darlington.—Whessoe, Ltd., engineers, are preparing plans for industrial buildings on site of several acres adjoining their present works.

Darlington.—Plans by Boro' A, E. A. Tornbohm (A), AMTPI, for 464 houses at Skerne Park estate have been approved.

Derbyshire.—EC received Ministry approval for following in 1958/9 schools programme:—Staveley sec. mod., £106,145 est.: Wingerworth prim., £27,268 est.: Ilkeston Hallam Fields jun., £32,186 est.: Dronfield sec. mod., £106,145 est.: Swadlincote sec. mod., £35,000 est.: Shirebrook jun., £32,186.: Frecheville sec. mod. (extensions) £70,000 est.: Heath sec. mod., £142,824 est.: Darley Dale sec. mod., £100,865 est.: Tibshelf sec. mod., £60,000 est.: extensions at Heanor grammar, £50,000 est.: and extensions at Staveley Netherthorpe, £45,000.

Dover.—M of E approved inclusion in 1958-59 programme of second stage of Archers Court sec. sch. (£40,000 prov.) and additional accommodation for Dover girls' grammar sch. (£20,000).

Dudley.—BC proposes erection of 29 dwellings in Oak-st. area.

Durham.—City C approved plans for new men's college at South-rd. for Durham University. A: Thomas Worthington & Sons, 178, Oxford-rd., Manchester. £300,000 est.

Eastbourne.—TC approved plans for 7-storey block of 55 flats, est. to cost £250,000, to be erected on site of bombed Mostyn Hotel, King Edward's-parade.

Ebbw Vale.—Extensions to Ebbw Vale hospital estimated to cost £250,000 are proposed by Welsh Regional Hosp. Bd. Bd's A: D. Garbutt Walton (F), Temple of Peace, Cathays Park, Cardiff.

Egham.—M of E approved inclusion in LCC building programme 1958-59 scheme for hostel for 70 students at Shoreditch Training College, Cooper's Hill, £63,100 est.

Essex.—EC approved sketch plans and estimates for following projects: Colchester Prettygate county jun. sch. for 320, £54,208; Dagenham King's Wood sec. sch. extensions, £43,500; North-East Essex technical college and school of art, third instalment, £197,785; and Lambourne county prim. sch., extensions, £10,000. County A to negotiate tender with Huttons (Builders), Ltd. for North-East Essex tech. college on basis of schedule rates in existing contract.

Gateshead.—Plans approved for 18 private houses at Otterburn-gdns. A: Dryden & Shaw, Market-st., Newcastle.—Plans approved for machine workshop at Coulthard-la. for Armstrong Whitworth, Ltd. A: R. Collins (A), AMTPI, Coronation-hse., South Shields.—Plans approved for RC church and presbytery at Lobley Hill. A: K. Burke, 10, Lambton-rd., Newcastle.—Avery & Co., Ltd. propose to build factory at East-st. A: Marshall & Tweedy (A), Blackett-st., Newcastle.

Golborne.—UDC proposes erection of 12 one-bedroomed bungalows at Laburnum-rd. estate, £11,940 est.

Harlow.—LCC Children's Com. proposes to build six new family homes, each for seven children, on land to be leased by DC. £33,160 est.

Hebburn.—Vickers-Armstrong, Ltd. plan to enlarge Palmer's shipyard and are considering construction of dry dock for ships up to 100,000 tons.

High Wycombe.—LCC Special Education Sub. Com. approved scheme for extending and improving Rayners boarding school for deaf children, Penn. £98,390 est. A: Stillman & Eastwick-Field (A/A), 30, John-st., Bedford-row, WC1.

Houghton-le-Spring. — Bursgreen (Durham), Ltd., to extend their factory at Fence Houses and plans are under consideration. Work may be started within two or three months.

Hove.—Plans in hand for new head office building for Alliance Building Socy. on eight acre site. A: Jackson & Greenen (F/L/A), Hinton-bldgs., Hinton-rd., Bournemouth.

Hyde.—BC proposes erection of 8 one-bedroomed flats and 10 garages at Hickenfield estate.

Irlam.—UDC proposes erection of 50 dwellings at Glaze estate, Cadishead.

Kettering.—Oxford Regional Hospital Board approved sketch plans for Stage 1, providing for new block of outpatients and casualty departments at Kettering Hospital, £363,250 est.

Lancing, Sussex.—20 flats for old people to be built on site of old coastguard cottages.

Leeds.—TC proposes erection of further 10-storey blocks of flats on various sites.

Leigh.—Electro-Chemical Engineering Co., Surrey, propose new factory at Chaddock industrial estate, Boothstown. A: A. R. Johnson (A), 11, Peter-st., Manchester.

Leigh.—RC Authorities propose erection of new sec. sch. for girls at Lark Hill, Astley, £192,525 est. A: Weightman & Bullen (F), 76, Rodney-st., Liverpool.

Liverpool.—MoW propose erection of new telephone exchange fronting Moorgate-rd., Kirkby. Plans by A Dept., Abell-hse., John Islip-st., SW1.

Llangollen.—BBC proposes erection of V.H.F. broadcasting station at Cryn-y-Brain. Work to commence as soon as possible.

Longdendale.—UDC proposes conversion of Albion Lodge, Hollingworth, to form new Council Offices. Plans by S: H. H. Sidebottom.

Lytham St. Annes.—Plans submitted to BC: 10 bungalows at Evesham-rd. and Pershore-rd. for J. Halstead, Ltd.; extension to premises at East Agnew-st. for Strickland Bros.; two-storey block of flats at junction of Cartmell-rd. and Clifton-dr., South, for Chester Builders, Ltd.; 10 bungalows at Haymarket, Lima-rd. and Beauclerk-rd. for Sir Lindsay Parkinson & Co., Ltd., London.

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Grams: DOHMS, LONDON

Macclesfield.—BC to erect 14 bungalows at Hurdsfield site and 450 houses for slum clearance at Weston estate.

Manchester. — Regional Hospital Board approved in principle following schemes:—Provision of new maternity unit, ante-natal clinic and twin operation theatre suite for plastic surgery unit at Withington Hospital, Manchester; extensions to X-ray department at Crumpsall Hospital, Manchester, £56,633 est. —Received Ministry approval for carrying out Phase 2 of scheme for provision of new ophthalmic unit at Birch Hill hospital, £18,531 est. Approved sketch plans for proposed new hospital at Wythenshawe, Stage 1, to include demolition and external work, £21,500 est. and erection of maternity and ante-natal clinic, £213,000 est. A: Powell & Moya (F/F), 36, Great Smith-st., SW1.

Manchester.—TC approved erection of five-storey office block and garage at York-st., Faulkner-st. and Pine-st., for Communications Systems, Ltd. A: A. F. Bennett (A), 35, Queen's Gate Mews, SW7.

Manchester.—TC proposes erection of flats on a site at Ferndene-rd., Withington. Plans proposed: New warehouse and distribution depot at Caernarvon-st., Robert-st., Pimblett-st. and Lord-st., Cheetham, for Factory Holdings (Manchester), Ltd. A: E. Dalling (F), 53, St. Martin's la., WC2; 2-storey factory on site bounded by Lord-st., Whitfield-st. and Caernarvon-st., Cheetham, for J. & M. Bartle, Ltd. A: Peter Cummings (F), Jacey-hse., Oxford-street, Manchester; Public house at Portway and Cornish-way, Woodhouse Park, for Wilsons Brewery Co., Ltd. A: R. S. Litherland (M), 480, Royal Exchange-bldgs., Manchester.

Middlesbrough.—Boro' E, J. A. Kenyon, to prepare scheme for new road alongside existing Middlesbrough-Redcar trunk road, £285,000 est.

Middlesbrough.—Education A, K. J. Caton (A), to prepare plans for proposed Roseberry-rd. RC sec. sch.

Middlesbrough.—Howards (Newcastle), Ltd. have acquired business of Dickson & Benson, Ltd., drapers and furnishers, Middlesbrough, and propose to extend premises.

Middlesbrough. — Garbutt, Archibald & Archibald (F/A), 23 Albert-rd., Middlesbrough, are A for 38 bungalows at Low-la. for Premier Dwellings, Ltd., Albert-rd., Middlesbrough.—R. C. McInnes, Ltd., builders, Cumberland-rd., Middlesbrough, are to erect 13 houses at Low-la., Middlesbrough. Boro' E, J. A. Kenyon, has prepared plans for children's home at Greenford Walk.

Middlesbrough.—TC plans erection of 32 flatlets for old people. Boro' E: J. A. Kenyon.

Nantwich.—Agricultural Machinery (Nantwich), Ltd., propose erection of new showrooms, offices and workshops at junction of Beam-st. and Millstone-la.

New Mills.—Licensing Justices approved plans for alterations to 'Grouse Hotel,' Birch Vale; 'Sycamore Inn,' Birch Vale; 'Station Hotel,' Furness Vale; 'Fox Inn,' Brookbottom; and 'Railway Hotel,' Whaley Bridge.

Newburn, Northumberland.—MH&LG has approved UDC's plans for 36 houses at Mount Pleasant estate, to cost £57,894. Ccl. has own direct labour department. S: J. A. Weatherley.

Newcastle-on-Tyne.—City C received loan sanction for £10,000 for new classrooms at North Fawdon county prim. sch. and Mountfield prim. sch.

Newcastle-on-Tyne.—C. A. Parsons & Co., Ltd., electrical and nuclear power plant manufacturers, Heaton, are negotiating for purchase of Brough Park greyhound racing stadium for proposed works extensions.

Newcastle-on-Tyne.—HC is inviting local builders to submit proposals for construction of shopping centres at Longbenton estate (19 shops), and Kenton North estate (20 shops). City A is G. Kenyon (A), AMTPI, 18, Cloth Market, Newcastle.

Newcastle-on-Tyne.—HC has approved plan for four-storey block of 24 flats at Kenton for single men. City A: G. Kenyon (A).—Plans approved for stores, garage and offices at Byron-st. for Rowells, Ltd. A: G. E. Charlewood, 14, Neville-st., Newcastle, 1.—Layout plans for private houses at Benton Park have been approved. A: Marshall & Tweedy (A), Blackett-st.—City EC has prepared plans for girls' school at Drayton-rd. City A.—J. Storey & Son, George-st., are to build bottling factory and store. H. Gatoff (A), Grainger-st.

Newcastle-on-Tyne.—M of E approved plan by Newcastle Spastic Children Socy. for additions and clinic at school at Forest Hall, Newcastle, £70,000 est. H. H. Severs, Forest Hall School, secretary.

Newcastle-on-Tyne.—R. W. Gregory & Ptnrs., Pilgrim-hse., Newcastle, have been appointed consulting engineers for proposed additions to genito-urinary department of General Hospital, for Newcastle Hospital Board, Benfield-rd., Newcastle.

Newcastle-under-Lyme.—EC to include following in 1958 building programme: Erection of Langdale infants department, Westlands, and Red-st. jun. sch., Chesterton.

North Riding.—Gleeds, St. James-st., Derby, have been appointed QS by EC for proposed Nunthorpe prim. sch. A: Samuel Morrison & Ptnrs. (A/A), Belper-rd., Derby.

Northallerton.—North Riding EC to start with erection of boys' mod. sch. A: D. C. Hall, 6, Masons-yd., Duke-st., SW1.

Northumberland.—Plans in hand for erection of pithead baths at Linton Colliery. NCB A Dept., Whitley-rd., Longbenton.

Nottingham.—M of E approved inclusion in 1957/8 programme of first instalment of new college of further education at Pelham-ave.

Oldham.—BC approved expenditure of £73,320 for erection of 48 three-storey flats at Fitton Hill estate.

Ormskirk.—EC to purchase site at Queen-st. for housing. Approved layout for 18 aged persons' bungalows and commercial unit in grounds of Sefton House, Burscough.

Ormskirk.—Walter Holmes & Sons, Ltd. propose erection of 12 houses off Liverpool-rd. and Virginia-ave., Lydiate.

Orrell.—RC Authorities propose erection of new grammar tech. sch. at Gathurst-rd.

Oxfordshire.—MofE approved following projects in 1958/59 programme:—Brampton prim. sch., £29,645; Thame sec. mod. sch., £98,736; Henley sec. sch. £85,000 (provisional); Henley grammar sch., extensions, £40,000; Long Hanborough prim. sch., £22,869; and, on reserve list, Banbury RC sch., £51,786.

Prudhoe-on-Tyne.—Newcastle Regional Hospital Board propose to carry out in four stages a big expansion scheme at Prudhoe and Monkton Hospital. Cost about £400,000. A: Stage I —P. H. Knighton, MBE (A), Newcastle Hospital Bd., Benfield-rd., Newcastle. Stage II—S. W. Milburn & Ptnrs. (F/F), The Esplanade, Sunderland.

Retford.—TP approval has been given to Walter Firth, Ltd. for 18 houses at Galwaycres. and to G. M. Payling for 10 houses at Newton-st.

Rochdale.—TC approved plans for erection of new RC sch. of St. Josephs, £145,000 est.

Rochdale.—Highways and Buildings Com. approved site plan of proposed technical college at junction of Manchester-rd. and Holland-st.

St. Helens.—TC received Ministry approval for layout of Chancery-la. housing site.

Scarborough.—TC received loan sanction for £18,311 for modernising of old council houses. —C. D. Arbon, 230, Filey-rd., Scarborough, has submitted layout plans to TC for proposed housing estate nr. Scalby-rd. brickworks.

Seaham.—Durham CC to erect old people's hostel at Ambleside-ave. County A: G. R. Clayton (F), South-st., Durham.

Shrewsbury.—Salop EC received Ministry approval for Stages 1 and 2 of proposed technical college at London-rd., £433,703 est.

Slough.—LCC to build area office and works depot to serve Britwell estate, Farnham Royal, £20,300 est.

South Shields.—Page, Son & Hill, 75, King-st., South Shields, are A for motor car showroom and petrol filling station for Warwick Motors, and public house to be known as 'Pickwick Arms' at Dickens-ave. for Westoe Breweries, Ltd.; Cotton, Ballard & Blow, Haymarket-hse., Newcastle-on-Tyne, have prepared plans for four shops and flats at Market Place for John T. Bell & Sons, builders, Market-st., Newcastle-on-Tyne, and extension to office block at Commercial-rd. for S. Newman, Ltd.—During 1959-60, TC is to erect residential hostel nr. Education Offices to serve Marine and Technical College. 1958-9 programme is likely to include infants' sch. in Highfield-rd. area and additions to Cleadon Park county sec. sch. A for both projects are T. A. Page, Son & Hill (F/F), 75, King-st., South Shields.

South Shields.—Sir Robert Chapman, Cleddon, South Shields, proposes to build 66 houses at Cleddon.

South Shields.—TC has received permission to extend proposed National Assistance Board building at Market Place, £10,000 est. Boro' S.—TC plans to build 12 three-bedroom, 58 two-bedroom and four terrace houses on Marsden Camp site. Boro' A.

Staffordshire.—Major school building projects est. to cost £2 million and including new grammar schools at Bilston, Coseley and Rowley Regis, have been approved by M of E for inclusion in 1958-59 building programme. Minister has included in 1959-60 programme second instalment of Bilston College of Further Education costing £113,600 and completion, estimated at £40,000, of Cannock Chase Mining and Technical College.

Stalybridge.—BC to erect 10 houses at Ridge Hill estate.

Stokesley.—L. Conolly, Ltd., builders, York-rd., Middlesbrough, to erect 12 houses at York-rd., Nunthorpe.

Stockton-on-Tees.—Planning authorities have approved TC's proposals for 96 flats, 194 maisonettes and 32 houses for single people. Boro' A: T. C. Hartley (A), 28, The Square, Stockton.

Stretford.—HC to consider acquisition of site between cemetery and Larch-ave. for erection of 14 two-storey flats. Boro' E to report on suitability of vacant land at junction of Norwood-rd. and Kings-rd. for housing development and to report on proposal, approved in principle, to erect shops and flats on vacant site north-west of Kings-rd. Approval in principle given to development of site at rear of shops at Barton-rd. Circle by 48 flats.

Sunderland.—Boro' A to submit proposals for redevelopment of sites of 1-12, 21 and 27-36, Azalea-terr. South in conjunction with adjoining sites.—By-law and TP approval to G. H. Plemper, Ltd. for 20 bungalows with garages at Dunelm estate. A: Geo. T. Brown & Son (F) and to J. W. Ridley, Ltd. for 10 bungalows at High Barnes estate. A: Wm. & T. R. Milburn (A/A).

Sutton-in-Ashfield.—UDC to erect 24 flats on two separate sites. A: Warner & Dean (L), Mansfield-rd., Sutton-in-Ashfield.

Tyldesley.—UDC proposes purchase of Majestic Cinema and adaptation to form new public baths and civic hall.

Wallsend.—TC to engage architect to prepare plans for public library at east end of borough.

Warrington.—BC proposes construction of new crematorium in conjunction with other nearby authorities.—Laporte Chemicals, Ltd., seek site for further extensions to works. C of E Authorities propose expenditure of £270,000 on new schools.

Washington, Co. Durham.—F. W. Woolworth & Co., Ltd., Lord-st., Liverpool, 2, have submitted plans to UDC for shop at Victoria-rd. Firm has own building department.—UDC is pressing Newcastle Breweries, Ltd., Haymarket, Newcastle-on-Tyne, to proceed with their scheme for licensed premises on Coach Road estate.—UDC to carry out redevelopment scheme at Great Usworth, plans by S. T. E. Crowe.

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West Hartlepool.—TC seeks Ministry approval of scheme for construction of 16 houses by direct labour at Owton Manor estate. Boro' A: A. G. Sinclair (A).

Whiston.—RDC proposes erection of 40 houses fronting Holt-la.

Whitehaven, Cumberland.—Reconstruction of Hornflowa factory after fire damage for West Cumberland Development Co., Ltd. A: Ronald Ward & Ptnrs., 29, Chesham-pl., Belgrave-sq., SW1. QS: A. E. Thornton-Firkin & Ptnrs., 17, Fitzhardinge-st., Portman-sq., W1.

Wigan.—H. D. Lowe, estate agent, proposes erection of hotel at Shevington-la., Shevington. Inquiry held.

Wolverhampton.—B. P. Littleford, Ltd., propose extensions to premises at Darlington-st. A: Diamond, Hodgkinson Ptnrs. (A), 31, Queen-st., Wolverhampton.

Workington.—TP Com. has approved plans by J. G. Murtagh, estate agent, Gordon-st., Workington, for converting Grange Private Hotel, Oxford-st., into shops, offices and flats.

Worthing.—TC approved in principle scheme for winter garden on sea front. £28,000 est.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Barnsley.—Works for TC:—32 houses and 8 aged persons' bungalows at Yews Farm estate extension. *Direct labour, £49,250.—42 houses. *Harlow & Milner, Ltd., Wakefield, £56,529.

Battersea.—Two-storey block of six 2-bedroom flats on site of 79-87, Sisters-ave. ‡Prestige & Co., Ltd., £13,961.

Bedford.—36 houses at Putnoe-st. for BC. ‡W. J. Bushby, Ltd. £64,427.

Birkenhead.—First instalment of Overchurch county prim. sch. for EC. *F. Clark & Sons, Ltd., 191, Heyworth-st., Liverpool. £69,968.—105 dwellings at Overchurch estate for TC. ‡Geo. Wimpey & Co., Ltd., London.

Birmingham.—Works for City C. City A: A. G. Sheppard Fidler (F), AMTPI. 26 dwellings at Masshouse-la., Kings Norton. *C. Bryant & Son, Ltd. £40,295; 10 dwellings at Kettlehouse estate, Kingstanding. *Geo. Stubbings, Ltd. £18,568; 4 dwellings and tenants' room at Shepley-rd., Rednal-hse. estate. *A. W. Houghton. £13,428; 1 doctor's house at Rubery Farm estate. *Hunt & Pearcey, Ltd. £5,493.

Bolton.—60 dwellings at Bromwich-st. estate for TC. *G. & J. Seddon, Ltd., Little Hulton, nr. Bolton. £86,058.

Bridgnorth.—New sec. mod. sch. for girls for CC. *A. H. Guest, Ltd., Coalbourne Brook, Stourbridge. £117,270.

Buxton.—Shops and flats at Victoria Park estate for BC. *Langley Bros., Stoke.

Carlisle.—Extensions to bakery at Durranhill industrial estate for W. C. Robertson (Carlisle), Ltd. *John Laing & Son, Ltd., Dalston-rd., Carlisle.

Chester.—12 bungalows, eight flats and two houses at The Square, Christlet, for RDC. *T. Warrington & Sons, Ltd., Ellesmere Port. £20,750.

Coventry.—12 bed-sitting room flats and 36 one-bedroom flats at Monks Park estate for City C. City A: A. G. Ling (F), MTPI. ‡Direct labour. £13,377 and £49,982.

Coventry.—32 flats and maisonettes at Tile Hill Neighbourhood Unit for City C. City A. ‡George Wimpey & Co., Ltd. £51,998.

Dudley.—Extensions to intermediate sch. for EC. *Five Oaks Estates, Ltd., Castlecroft-la., Compton, Wolverton. £30,906.

Dunstable.—42 houses at Downside estate for BC. A: Ronald Thurstom (A). QS: E. G. Bullock. *Lindum (Lincoln), Ltd., Cauldwell Walk, Kempstom-rd., Bedford. £60,384.

Eastbourne.—26 houses, Spots Farm estate, section 2. 2 & 4, Saffrons-rd. Boro' A&S: R. Williams, BSc. *Wm. Ellis (Etchingham), Ltd., Sussex. £29,795.

Felling, Co. Durham.—155 garages at Leam-la. estate for UDC. S: R. Morton. *Direct labour. £25,575 (approved by Ministry).

Gateshead.—100 'No Fines' houses and 50 traditional houses at Wardley for TC. Boro' E: G. F. Winters. *George Wimpey & Co., Ltd., Orchard-hse., Fenwick-terr., Newcastle-on-Tyne. £208,268 (revised tender).

Gateshead.—Extensions to test house for Mackley's, Ltd., Hawks-rd. *Brims & Co., Pandon-bldgs., City-rd., Newcastle. — Large extensions at their Park-rd. works for Clarke Chapman & Co., Ltd. *Brims & Co.

Gosport.—148 one-bedroomed flats, 24 four-bedroomed flats and six two-bedroomed houses in 'new tradition' construction at Rowner and Wilmott-la. for BC. ‡Selleck Nicholls, Ltd. £221,104.

Guisborough.—302 houses with ancillary works at Hutton-la. estate. A: P. R. Middleton & Ptnrs. (A/A), 17, Albert-rd., Middlesbrough. QS: Turner & Townsend. T. A. Greenwell & Co., Ltd., £475,266; Carlton Contractors, Ltd., £465,458; Geo. Firdy & Son, Ltd., £457,163; Tarslag, Ltd., £454,014; John Laing & Son, Ltd., £445,766; F. Shepherd & Son, Ltd., £423,981; G. M. Pearson & Son, Ltd., £418,468; Premier Dwellings (Cleveland), Ltd., £412,792; *W. J. Sims Son & Cooke, Ltd., Nottingham, £409,902.

Hatfield.—Office block (3,000 ft. super.) adjoining No. 16, St. Albans-rd. E&S. QS: Taylor & Smith. Welwyn Builders, Ltd., £11,345; Cockcroft & Preece, Ltd., £11,275; Hale Construction Co., Ltd., £11,267; Cramb & Dean, Ltd., £11,256; Universal Housing Co., Ltd., £11,107; Skinner & Campbell, Ltd., £11,099; T. F. Nash Contractors, Ltd., £10,930; *Geo. Mott & Son, Watton-at-Stone, nr. Hertford, £10,092.

Hendon.—16 one-bedroomed bungalows at Meadfield, Edgware, for BC. Boro' E&S: J. L. Pelham, MBE, AMInstCE. ‡Gregory Housing, Ltd. £17,534 (negotiated tender).

Liverpool.—Large new shop and office premises at corner of Lord-st. and South Castle-st. for Refuge Assurance Co., Ltd. *Tyson (Contractors), Ltd., Dryden-st., Liverpool.—Conversion of premises at 69, Bedford-sq. South, and 88, Abercromby-sq. to form new Department of History for University of Liverpool. *J. B. Johnson & Co., Ltd., 17, Overton-st., Liverpool.

¶London (Air Ministry).—New works contracts value of £500 or over for week ended July 12:—*Building work:* Newmarket, Suffolk, Laughton & Fuller, Ltd., 51, High-st., Brandon, Suffolk; Nth. Coates, Lincs, R. M. Phillips & Son, Ltd., Estate Yard, Brigg, Lincs.; Alconbury, Hunts., Drabble Construction, Ltd., 44, Aylesbury-st., Bletchley, Bucks. *Painting work:* Church Lawford, Warwicks., T. E. Cundy & Son, Ltd., 28, Belgrave-rd., Leicester; Bridgenorth, Salop. & Aston Down, Glos. (2 contracts), Ian Williams & Co., Ltd., Wroughton-pl., Ely, Cardiff; Prestwick, Ayrshire, A. Hector (Grabham, Ltd.), 21, Blandford-st., Sunderland; Hereford, J. I. Cheeseman & Co., Ltd., 76, Beechcroft-gdns., Wembley Park, Middx.; Cosford, Salop., M. A. Appleton (Contrs.), Ltd., 22, Bilston-st., Wolverhampton. *Artificers' work:* Syerston, Notts., Lewis & Watters, Ltd., Lime-ave., Lillington, Leamington Spa, Warwicks.; Titchfield, Hants., R. Corben & Son, Ltd., 26, Carlton-cres., Southampton, Hants. *Civil engineering:* Eastbury Park (Northwood), Middx., W. & C. French, Ltd., Buckhurst Hill, Essex; Manston, Kent, Richard Costain, Ltd., 33, St. George's-pl., Canterbury, Kent. *Resurfacing:* Rhoose, Glam., O. J. Elliott & Co., Ltd., 339, Badminton-rd., Winterbourne, Bristol.

London (British Railways).—Recent contracts placed by North Eastern Region.—Simonside, Tyne Dock: accommodation for wagon repairs. Tarslag, Ltd., Stockton-on-Tees.—Thornaby New Motive Power Depot: administration and amenities block. Charles R. Price, Doncaster. —Walkergate C. & W. Shops: wheel lathe. Scottish Machine Tool Corpn., Ltd., Johnstone. —Thornaby Motive Power Depot: yard lighting. Tubewrights, Ltd., London.—Track preparation work in advance of electrification. East Coast main line. Shaftholme and Barnby Dun. Wm. Jones, Ltd., London.

London CC.—Installation of central-heating and hot-water systems at Shoreditch training college, Cooper's Hill, Egham, Surrey. Tenders for construction of boiler house and external ducting were invited on either or both of two bases on which contract would allow for fluctuations either in rates of wages and cost of materials (basis A) or in rates of wages only (basis B)

	Basis	£
F. D. Hidden & Co., Ltd. ..	A	17,302
Geo. Moss & Sons, Ltd. ..	A	16,226
	B	16,376
James (Builders), Ltd. ..	A	15,550
	B	15,575
*E. Clarke & Sons (Addlestone), Ltd., Addlestone	A	15,209

Architect's comparable estimate on basis A is £14,948.

Engineering work in connection with above:—

	£
William Freer, Ltd.	41,077
Richard Crittall & Co., Ltd.	39,841
A. G. Manly & Co., Ltd.	38,950
Norris Warming Co., Ltd. ..	38,685
Fred. G. Alden, Ltd.	38,188
G. N. Haden & Son, Ltd.	37,950
Barrett and Wright, Ltd.	37,749
Newman and Watson, Ltd. ..	35,960
*Brightside Heating & Engineering Co., Ltd., Westminster	35,373

Estimate of J. Roger Preston & Partners, constg. engrs. for this part of project, is £41,500.

London CC.—54 maisonettes in three four-storey blocks, with 40 tenants' store sheds, on Eugenia-rd. site, Bermondsey. *Kirk & Kirk, Ltd. £173,900 est.

London CC.—Supply and delivery of 12 passenger lifts and other works at Brandon estate, Southwark. *The Express Lift Co., Ltd., £71,982.

¶London (MoW).—Contracts placed for week ended July 6:—

Cardiganshire: Ministry of Supply, Aberporth, external and internal painting. Baxter Bros. (1920), Ltd., 182-84, Serlock-st., Birmingham 5. *Gloucestershire:* Block I, G.C. Headquarters, Benhall, Cheltenham, conversion of spurs, Ford & Weston, Ltd., Osmaston-rd., Derby. *Lancashire:* Infant-st., Accrington, erection of telephone exchange. Norwest Construction Co., Ltd., Litherland, Liverpool. *Northumberland:* Ministry of Pensions and National Insurance, Benton Park-rd., Newcastle, refelting roofs. Magnus Flooring & Asphalte Co., Ltd., Sanyford-sq., Newcastle. *Nottinghamshire:* Plumtree, Nottingham, erection of new telephone exchange. John Cawley, Ltd., Canal-st., Nottingham; Church Hill, Blidworth, Nottingham, erection of telephone exchange. Gee, Walker & Slater, Ltd., Uttoxeter Old-rd., Derby.

¶London (War Dept.).—Works contracts placed for week ended July 5:—

Berkshire: Building, Clark Bros., Swindon;

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Painting. T. H. Kenyon & Sons, Ltd., London. *Cumberland:* Roadwork, Eden Construction Co., Ltd., Carlisle. *Hampshire:* Painting, Architectural Decorators, Ltd., London; Building, Brazier & Son, Ltd., Southampton; Painting and decorating, P. J. Hartel (Southern), Ltd., Southampton; Roofing, Maurice Hill, Ltd., Horndean. *Leicestershire:* Fencing, Bernard Holt, Nottingham. *Midlothian:* Painting, W. Cowper & Son, Edinburgh. *Somerset:* Miscellaneous, Henry W. Pollard & Sons, Bridgwater. *Wiltshire:* Hardstanding, Anglo American Asphalt Co., Ltd., London; Roadwork, O. J. Elliott & Co., Ltd., Bristol; demolition, C. Graham, Tatsfield. *Yorkshire:* Roadwork, Modern Paviors, Ltd., Shipley; building, Samuel Owst & Son, Ltd., Hull.

Manchester.—Following for TC:—Foundation and finishing works for moveable classrooms at Northenden prim. sch. *Arthur Wardle (Builders), Ltd., Manchester; New kitchen and night nurses' block at Soss Moss special sch. *Exors. of Samuel Appleton, Ltd., Northwich; moveable classrooms for various schools. *Vic Hallam, Ltd., Langley Mills, Notts; foundation and finishing works for moveable classrooms at Ladybarn sec. sch., Woodhouse Park sch. and Moss Nook sec. sch. *Arthur Wardle (Builders), Ltd., Manchester.

Middlesbrough.—30 houses at Pallister Park for TC. Boro' E: J. A. Kenyon. *Direct labour. £46,925.

Middlesbrough.—Erection of Pallister Park county prim. sch. Education A: K. J. Caton (A). QS: Turner & Townsend. J. McCreton, Ltd., Middlesbrough, £56,814.

Northampton.—New St. Mary's RC sec. sch. for EC. *Bosworth & Wakeford, Ltd., Newst., Daventry. £98,418.

Richmond (Surrey).—Works for BC:—(a) 14 maisonettes at Ham-st.; (b) six flats at Kings Farm-ave. Boro' E&S. QS: N. Warmsley, FRICS. ‡W. & E. Simmonds, Ltd., Walton-upon-Thames, Middx., (a) £35,125, (b) £10,308.

Scarborough.—9 one-bedroomed flats at Wreyfield-dr. for TC. Boro' E: H. V. Overfield. *E. Hunter (Scarborough), Ltd., Beaconsfield-st., Scarborough. £12,247.

Sedgefield.—52 houses at Trimdon Village and 14 bungalows at Chilton for RDC. Plans by Housing A, Council Offices. *Bell & Ridley, North-rd., Durham (subject to Ministry approval).

Stockton-on-Tees.—Erection of proposed Fairfield jun. mixed sch. for EC. A: T. C. Hartley (A), 28, The Square, Stockton. *Moore & Cartwright, Ltd., High-st., Norton. £49,707.

Sunderland.—Fitting out berth for T. W. Greenwell & Co., Ltd., ship repairers. Constg. engrs.: Sir William Halcrow & Partners, Alliance House, Caxton-st., Westminster, SW1. *Melville Dundas & Whitson, Ltd., Blythes-wood-sq., Glasgow, C2.

Sutton Coldfield.—New showrooms and offices at Maney Corner for Reeve & Stedeford, Ltd. *Lewis Gorton & Sons, Ltd., 60, Alfred-st., Sparkbrook, Birmingham.

Twickenham.—Extensions to Thames Valley county sch. for Middlesex CC. ‡W. H. Gaze & Sons, Ltd., £64,234.

Walsall.—Phase 3 of Wolverhampton and Walsall technical college for Board of Governors. *F. & E. V. Linford, Ltd., Park-rd., Cannock. £268,408.

Warsop.—30 houses at Sandy-la. site for UDC. *Adam Eastwood & Sons, Ltd., Warsop. £42,335.

Wednesbury.—Block of six shops and 12 flats at Walsall-st. for BC. Boro' E&S: N. Ashworth. QS: Henry Vale & Son, Wolverhampton. *Baker Bros. (Builders), Ltd., Kent-st., Upper Gornal, nr. Dudley. £34,928.

Wolverhampton.—Extensions to premises at Wednesfield-rd. for Chubb & Sons Lock & Safe Co., Ltd. *Boswell (Contractors), Ltd., 124, Compton-rd., Wolverhampton.

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